JANUARY, 1936

COTTON

Serving the

TEXTILE INDUSTRIES

FEB 1936

EXTENDING TO OUR MANY FRIENDS IN THE TEXTILE INDUSTRY SINCERE WISHES FOR A BRIGHT, PROSPEROUS AND HAPPY 1936.

Robert C. Boger

PRESIDENT

BOGER & CRAWFORD

PHILADELPHIA

TS 1550
.C8

1 High speed warping
2 Slow speed warping
3 Winding filling
4 Twisting
5 Cone winding
6 Winding bottle bobbins
7 Winding braider tubes
8 Winding braider bobbins

3 inch and 6 inch Franklin Packages taken at random from the dryer after dyeing. They have NOT been rewound and the photo has NOT been retouched.

PERFORMANCE *(NOT PRICE)* DETERMINES VALUE

Because Franklin Process Package Dyeing has saved money for the textile industry, it can not safely be assumed that ALL package dyeing will save money. Package dyeing varies in quality just like other types of yarn dyeing. Furthermore even package dyeing *at a lower price* does not mean a saving if the performance is "below par."

One reason for Franklin Process popularity is the fact that the Franklin Package has "performed" consistently well in the mill WITHOUT REWINDING. This has meant the elimination of extra winding and the cost and yarn waste incidental thereto.

Illustrated herewith are some of the many mill operations in which the Franklin Package (just as it comes from the dryer) is constantly used as a supply, with little or no trouble from breakage and waste. The savings effected in this way are often more important than a small difference in the dyeing price.

When seeking true values in cotton and worsted yarn dyeing, look to—

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

Natural Yarns **Colored Yarns** **Glazed Yarns** **Custom Yarn Dyeing** **Dyeing and Processing Machines**

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • N. Y. REPRESENTATIVE, 40 WORTH ST.

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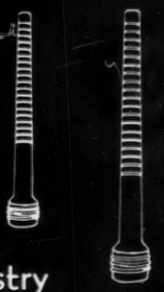
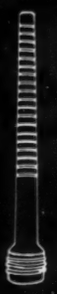
ARE YOUR BOBBINS BREAKING YOUR YARN?

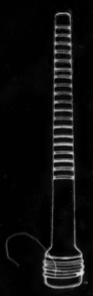


Under prevailing conditions in the Textile Industry Many Mills have continued to Run Old and Worn Out Bobbins long after they Should Have Been Replaced

Other Mills have Saved on First Cost by buying Bobbins Made to Sell at a Price—Inferior Bobbins with Some Vital Measurement Not Quite Right—Or Perhaps They Do Not Fit the Shuttle Spring



RESULT—MORE FILLING BREAKS



Filling Breaks are a Real Detriment to Quality and Quantity of Your Product—If You are Running Feelers and Matching the Pick They Will

CUT DOWN THE NUMBER OF LOOMS PER WEAVER

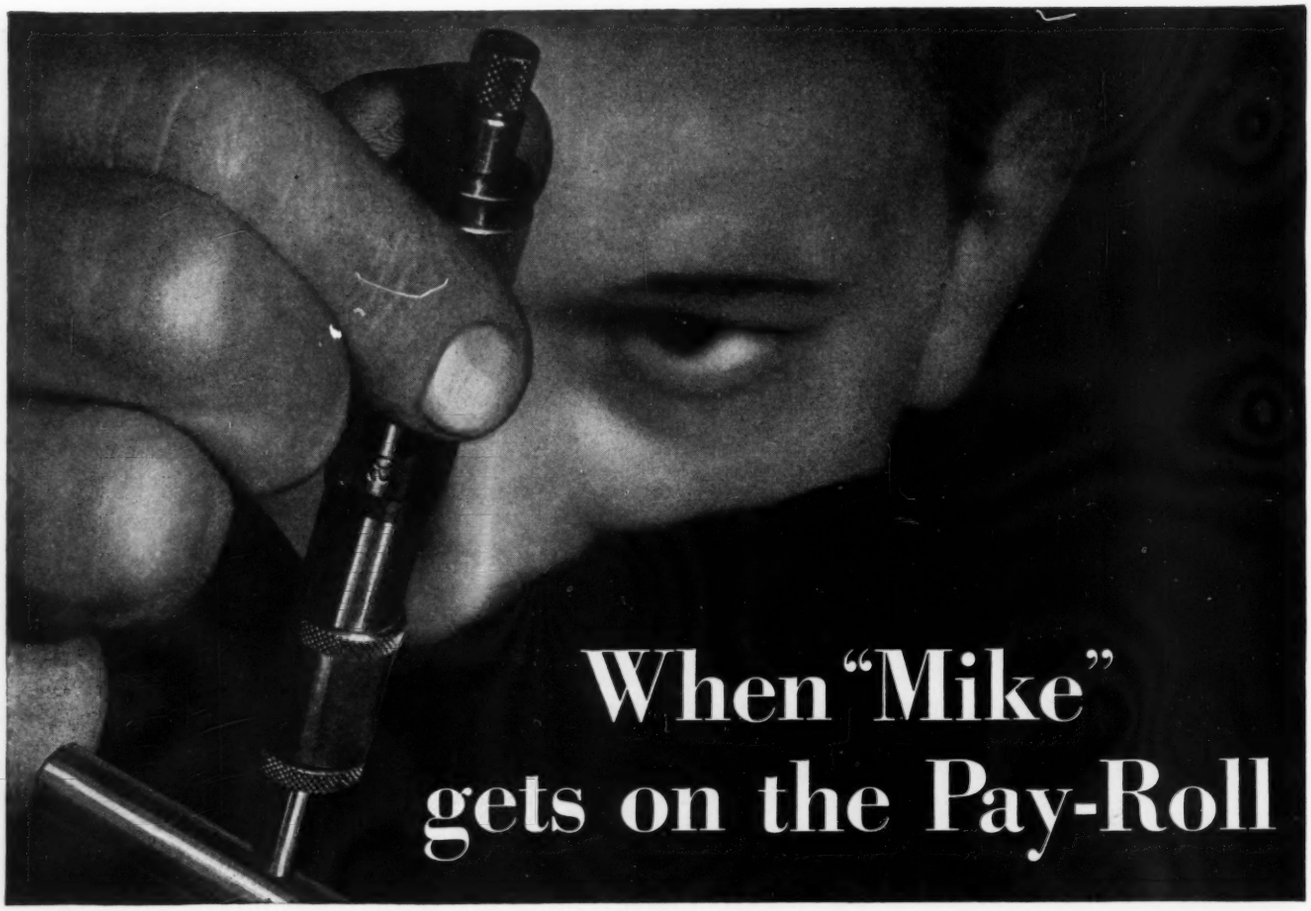
WHY NOT BUY YOUR BOBBINS FROM THOSE WHO BUILD YOUR LOOMS?

THEY KNOW

- The Bobbin Your Loom Needs
- The Bobbin Your Weave Needs
- The Bobbin Defects Sure to Cause Weave Room Trouble

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C



. . . he points out the way to new operating economies

Engineers in textile mills are finding, in spindle oils alone, new ways to reduce power consumption, increase spindle life, prevent wobble, and breakage—and are proving their results with micrometer and watt-meter. These same economies are available to you.

You will get these advantages in Texaco Spindle Oils. Your engineer will find reductions in bearing wear due to their lower frictional resistance and greater film strength. The "mike" will prove this.

Operating results over a period of months will show other improvements—in reduced breakage and spoilage, freedom from spindle wobble, less idle time, reduced maintenance expense.

If you'll take the Texaco representative out into your plant he may be able to point out places where Texaco Spindle Oils and other Texaco Products can help you in the never-ending task of reducing operating costs. Write to The Texas Company and we will send our representative to serve you.

THE TEXAS COMPANY • 135 East 42nd Street, New York City

Nation-wide distribution facilities assure prompt delivery

TEXACO *Industrial Lubricants*

NEW DEPARTURE

Bearings—*Plus*

WHEN you deal with New Departure, you get more than just bearings — even more than the finest of materials and workmanship, more than the greatest endurance possible to build into a bearing. Even more than application engineering of the highest order — for when you specify New Departure Ball Bearings, you are safeguarding yourself with an *absolutely dependable source of supply.*

The New Departure Mfg. Company, Bristol, Connecticut. Branches located at Detroit, Chicago and San Francisco.

NEW DEPARTURE

BALL BEARINGS 2355

RUGGED BOBBINS
for Faster Production!

Warp Bobbin

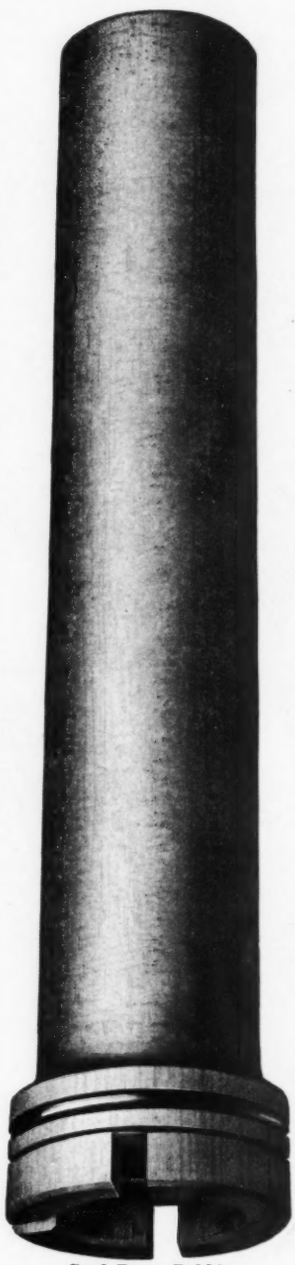
TRUE running at high speeds, these U S products have built a fine reputation for long and satisfactory operation. They are available in any style or size to meet your individual requirements.

• • •

At the left: U S Warp Bobbin for long draft spinning. Made from best quality stock, supplied with or without metal shield on base. Also with or without brass bushings. Available in any design required and finished as desired.

At the right: U S Card Room Bobbin. Supplied with or without metal shield and wire rings on base. Made from selected stock, they are finished smooth inside and out and include a special finish that assures moisture resistance.

Let the nearest U S Sales Representative show these products to you.



Card Room Bobbin

U S BOBBIN & SHUTTLE CO.
Manchester, New Hampshire

Branches: Monticello, Ga.; Greenville, S. C.; Johnson City, Tenn.; Providence, R. I.; Lawrence, Mass.; Philadelphia, Pa.

Chicago Address: Albert R. Breen, 2650 Coyne St., Chicago, Ill.

BETTER BOBBINS • SPOOLS • CONES • SHUTTLES

The revolving top clearer is a very efficient type. It picks up and positively retains the waste. On coarse work the "picking" frequency is materially lessened.
The stationary top clearer always keeps the top apron and back top roll clear of fly and dirt.
A simple, practical cradle insures correct placement of the guiding aprons, with full closure, preventing accumulation of waste inside and outside of aprons.
The roving is guided by the two leather aprons close up to the bite of the front rolls. This permits full control of all fibres from middle to front rolls for correct drafting.
The back underclearer is in wiping contact with the back steel roll and the bottom apron. It guards against waste and loose fibres getting into the roving and yarn, and also prevents lap-ups.

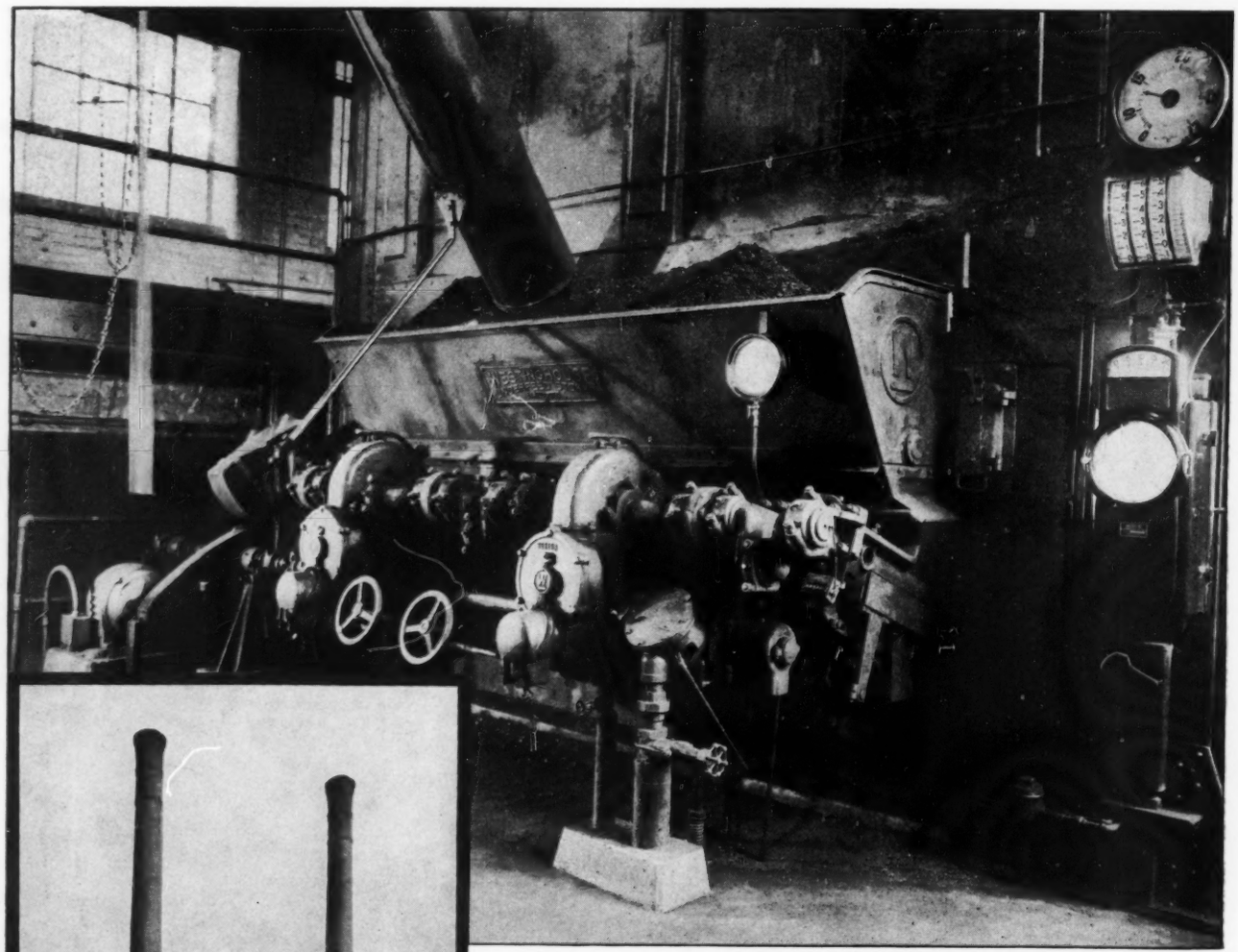
THE WHITIN-CASABLANCAS SYSTEM
OF LONG DRAFT FOR SPINNING FRAMES

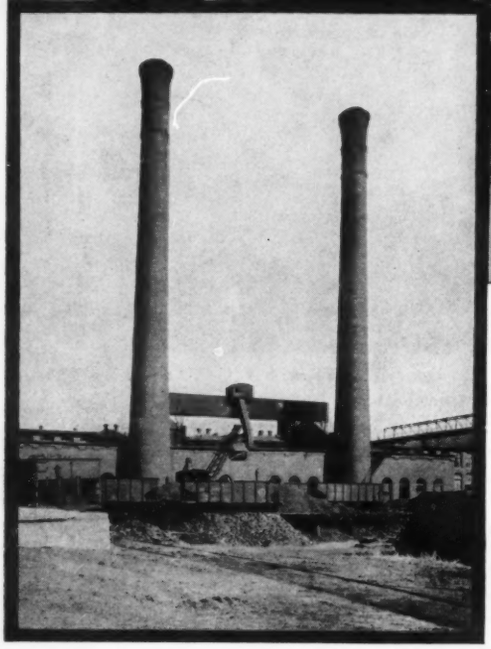
Running on 2,500,000 spindles in this country alone (10,000,000 the world over). Rapidly becoming the accepted system of long draft because it is the simplest, cleanest and most satisfactory method known for obtaining high quality yarns with the lowest possible cost.

WHITIN MACHINE WORKS

Charlotte, N. C. WHITINSVILLE, MASS. Atlanta, Ga.

31% MORE CAPACITY





One of the three Westinghouse Continuous-Ash-Discharge Link-Grate Stokers at the Lindale (Ga.) Division.

★
★
★
★

Pepperell Manufacturing Company, Lindale (Ga.) Division.

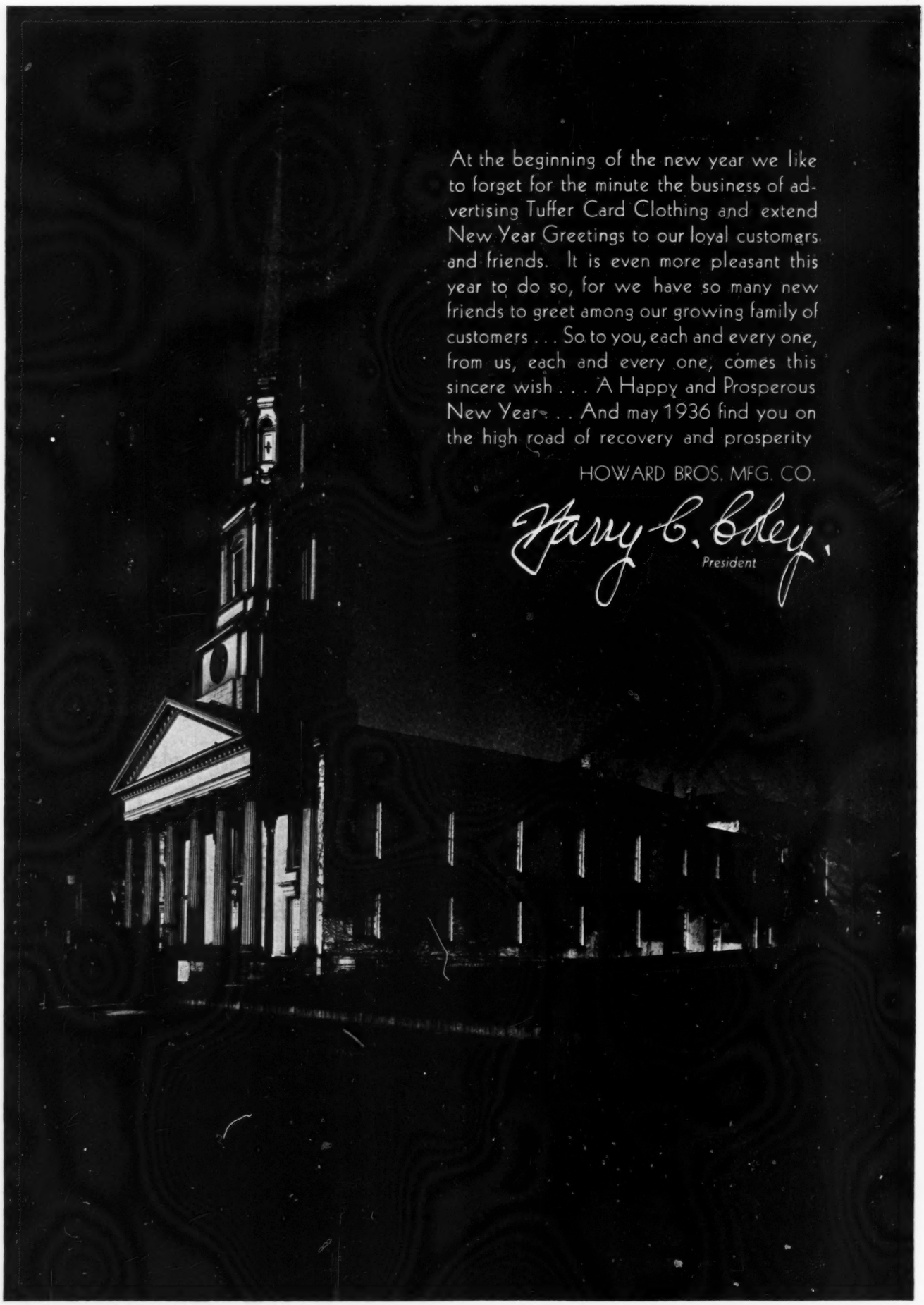
★ ★ ★ ★ **Westinghouse**

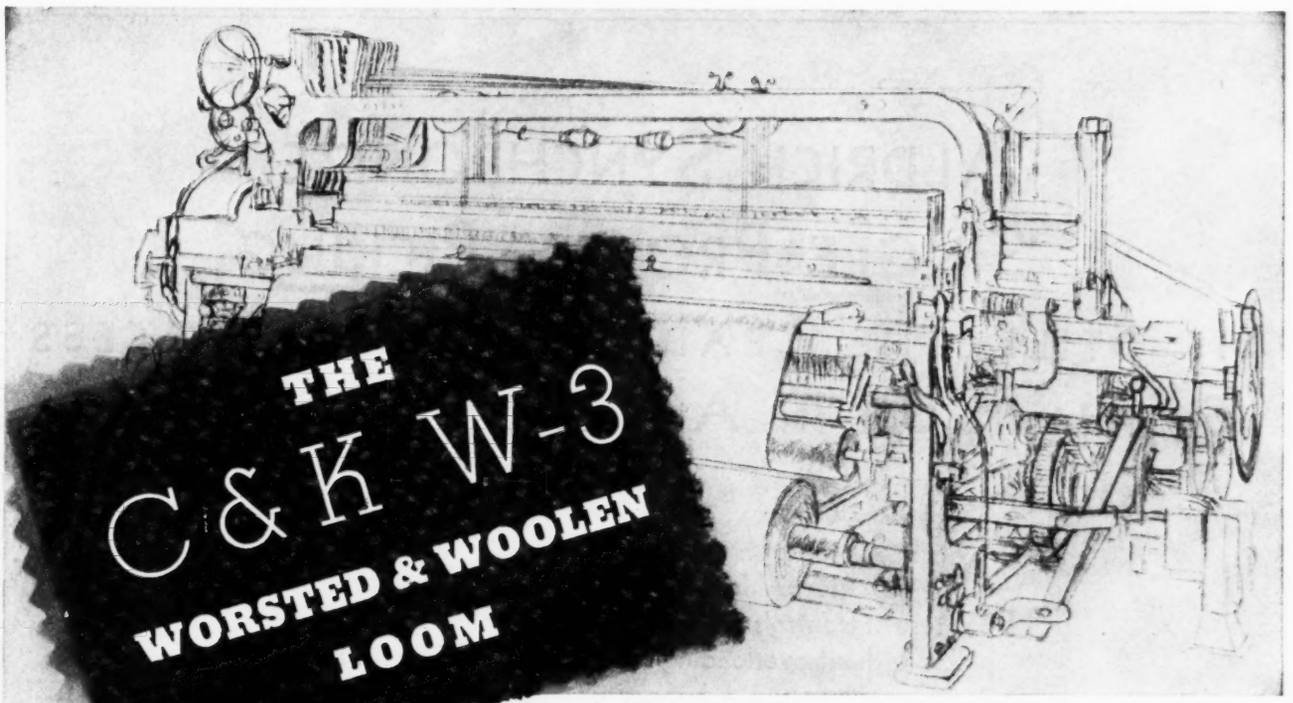
10% LOWER COST!

AT Lindale Division, 3 Westinghouse Continuous-Ash-Discharge Link-Grate Stokers replaced Westinghouse stokers of conventional design. ★ Two boilers will now carry the plant load which formerly required three boilers. ★ Coal that clinkers badly is now being burned without difficulty. 31% more capacity, 10% lower cost. R 68052

★ ★ STOKERS ★ ★ ★ ★

WESTINGHOUSE 1886 W 1936 GOLDEN JUBILEE


At the beginning of the new year we like to forget for the minute the business of advertising Tuffer Card Clothing and extend New Year Greetings to our loyal customers and friends. It is even more pleasant this year to do so, for we have so many new friends to greet among our growing family of customers . . . So to you, each and every one, from us, each and every one, comes this sincere wish . . . A Happy and Prosperous New Year . . . And may 1936 find you on the high road of recovery and prosperity
HOWARD BROS. MFG. CO.
Harry C. Boley
President

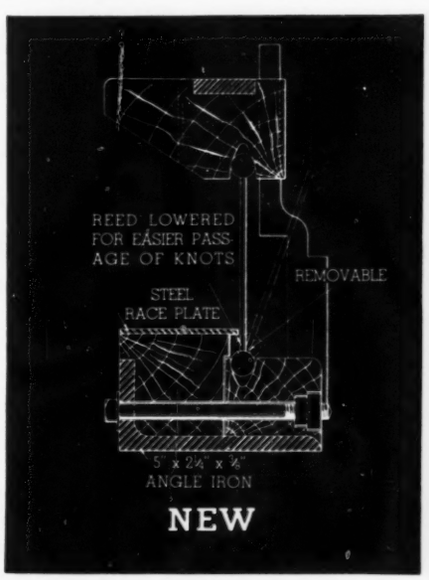


THE C & K W-3 WORSTED & WOOLEN LOOM

more flexible - greater capacities

The C & K W-3 Worsted & Woolen Loom is the big brother to the W-2 Loom. In addition to all the qualities of the W-2, it was designed to weave **any worsted or woolen fabric.** The W-3 is built as wide as 120" between swords—25 or 26 harness—Bobbins, 8" x 1⅛", 8¾" x 1½", 10⅛" x 1½" —Full beam 24" in diameter— This loom can be built with either high or low roll takeup; high roll takeup (woolen) allows a roll of cloth 19" in diam., while the low roll takeup (worsted) allows a roll of cloth 16" in diam. A weaver can operate 3, 4, or 6 looms, depending on the characteristics of the fabric. The average speed for 82" and 92" looms is 122 to 134 picks per minute.

The W-3 Loom, like the W-2, is an entirely NEW loom from the floor up. Note, for instance, the ruggedness of the new laybeam as compared to the old. The reed is lowered for the better passage of knots. Reed can be removed and reinserted without disturbing alignment. This is typical of the way the entire loom has been redesigned—resulting in much higher efficiencies.



CROMPTON & KNOWLES LOOM WORKS

Allentown Philadelphia **WORCESTER, MASSACHUSETTS** Southern Office, Charlotte, N. C.

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

ALDRICH SYNCHRONIZED SINGLE PROCESS PICKING

IS STILL THE LEADING SINGLE PROCESS SYSTEM IN USE IN AMERICAN COTTON MILLS.

The patented Aldrich Synchronizer turns out better laps because it controls the flow of cotton through the whole picker without overloading the evener, and without making it necessary to use a hopper or gauge box between the breaker and finisher sections.

With old style two and three process picking, good breaker laps made better finished work than poor breaker laps.

With new style single process picking the same thing is true.

The Aldrich System is a continuous process in which the lap is made evener and smoother by each successive beater and screen section in the picker.

The Aldrich System does not tear up the breaker lap and then make another breaker lap for the cards.

The Aldrich System makes the best possible finished lap out of the best possible breaker lap.

It can not only be applied to two and three process pickers, but to other types of less efficient single process machines.

AldricH MachinE

Greenwood, **WorkS** South Carolina

by

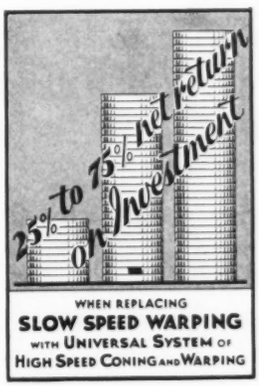
UNIVERSAL HIGH SPEED CONING AND WARPING

1. ***75% SAVING IN HANDLING.*** The large 4-lb. cone instead of the small 1-lb. spool eliminates 75% of the cost of handling, trucking and creeling, and also saves the expense of broken and cracked spools.

2. ***25% - 33⅓% INCREASE IN PRODUCTION.*** A spooler operator wastes time walking because the yarn speed varies. On a winder, the yarn speed is uniform; the winder operator works in a uniform cycle and can produce 25%-33⅓% more.

OTHER ADVANTAGES

Warper production is continuous because cones are magazined. A continuous supply of fresh yarn is provided through elimination of dead yarn. Investment in process stock inventory is reduced several thousands of dollars.


25% to 75% net return on Investment
WHEN REPLACING
SLOW SPEED WARPING
WITH UNIVERSAL SYSTEM OF
HIGH SPEED CONING AND WARPING

Better weaving from warps prepared with uniform tension. Natural elasticity of yarn is retained. Lost and crossed ends are eliminated.

SAVINGS IN TWISTING

Mills can also replace their spoolers with winders for preparing yarn for the twister creel. In addition to the savings made in winding, there are other advantages in twisting from Universal packages.

1. The large supply package lasts about a week, saving 75-80% in the cost of creeling.

2. Uneven tension caused by pulling the yarn from under the heads of spools, is eliminated.

3. Twister speed is increased; and with less stopping time for creeling, production is increased more than 10%.

IN 3 OUT OF 4 MILLS — MORE NET RETURN

Universal System of High Speed Coning and Warping

UNIVERSAL WINDING COMPANY

BOSTON

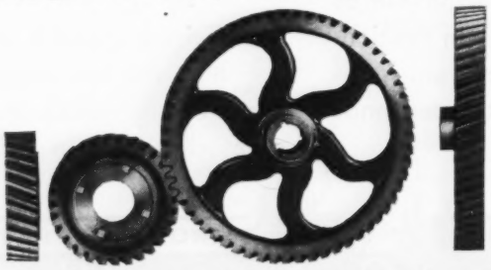
NEW YORK · PHILADELPHIA · PROVIDENCE · SPRINGFIELD · UTICA · CHARLOTTE · ATLANTA

2521

Smooth Operation

With West Point Spiral Gears

When straight tooth gears become worn, the operation of the machine becomes more of a series of short, quick jerks, even though scarcely noticeable, instead of the smooth, steady pull in the way machinery should properly function. These same jerks cause backlashing, or a slight reverse action of the gear, which often results in imperfections in spinning and weaving. But with West Point Spiral Gears you are assured an easy, continuous "flow"—revolutions without jerking and smooth operation. West Point Spiral Gears are made of any size for any purpose and for use on any textile machine—head gears on looms, on spinning frames, sizing vats, slashers, etc.



The THREE-IN-ONE PRINCIPLE

By studying the illustration you will note that there is a three-tooth contact at all times. As one tooth moves outward, another starts inward. This three-in-one principle is responsible for smooth operation and less shock to machinery. West Point Spiral Gears therefore prove to be definite cost reducers and materially increase efficiency. And, remember too, they eliminate backlash and "seconds" in your production. *May we furnish more information?*

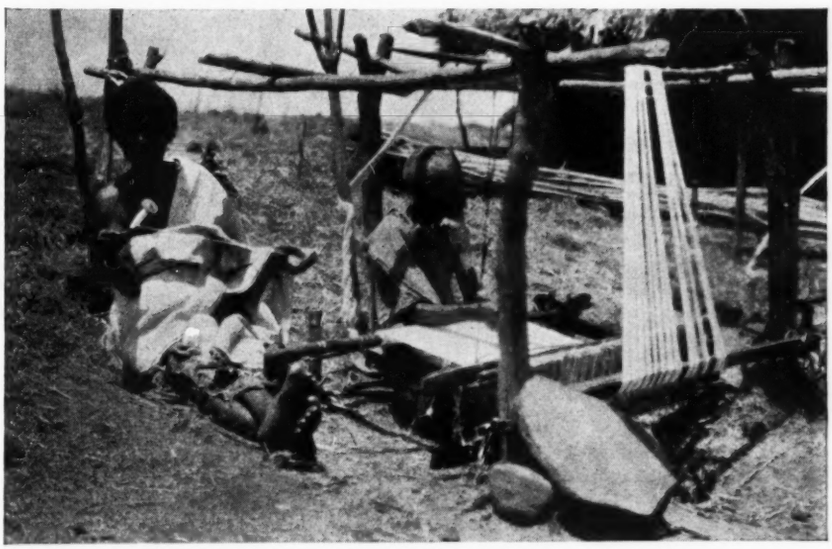
We are also manufacturers of special machinery, cloth room machinery and textile machinery repair parts.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

Plain Friction Type Loom Bearings May be Good Practice in Ethiopia

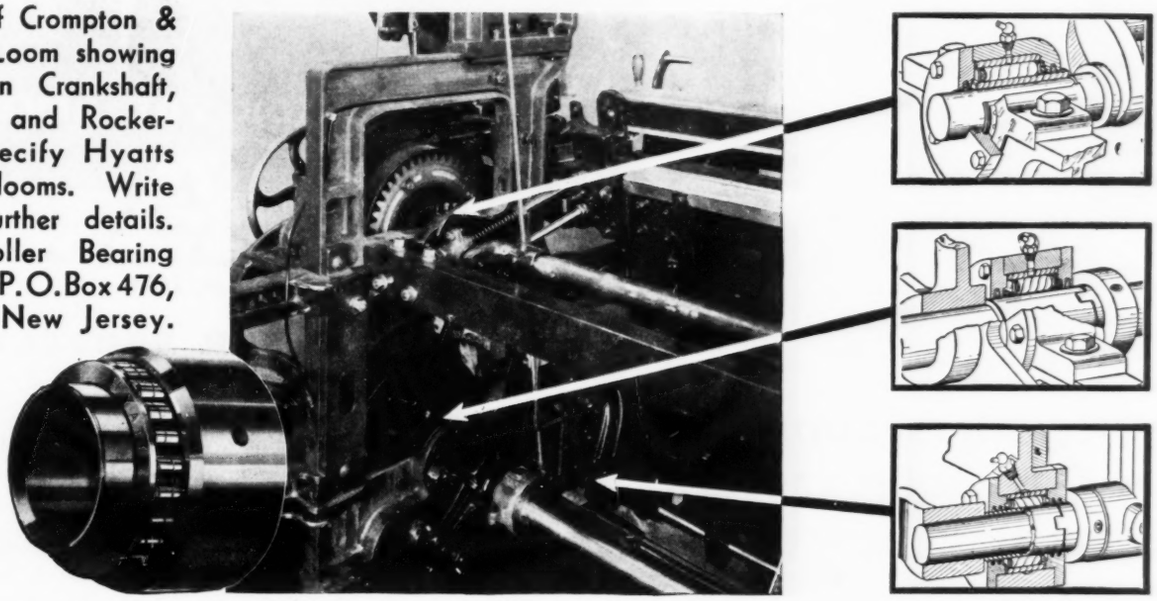


IN the Kingdom of Haile Selassie they may be able to do their weaving with antiquated equipment, as illustrated. They don't have to worry about competition, processing taxes, maintenance, power costs or production efficiency.

But you do. That is why you should have the most modern equipment—modern looms with Hyatt Roller Bearings throughout.

To be Modern an X-Ray of Your Looms Should Show Hyatt Roller Bearings at Every Important Operating Position

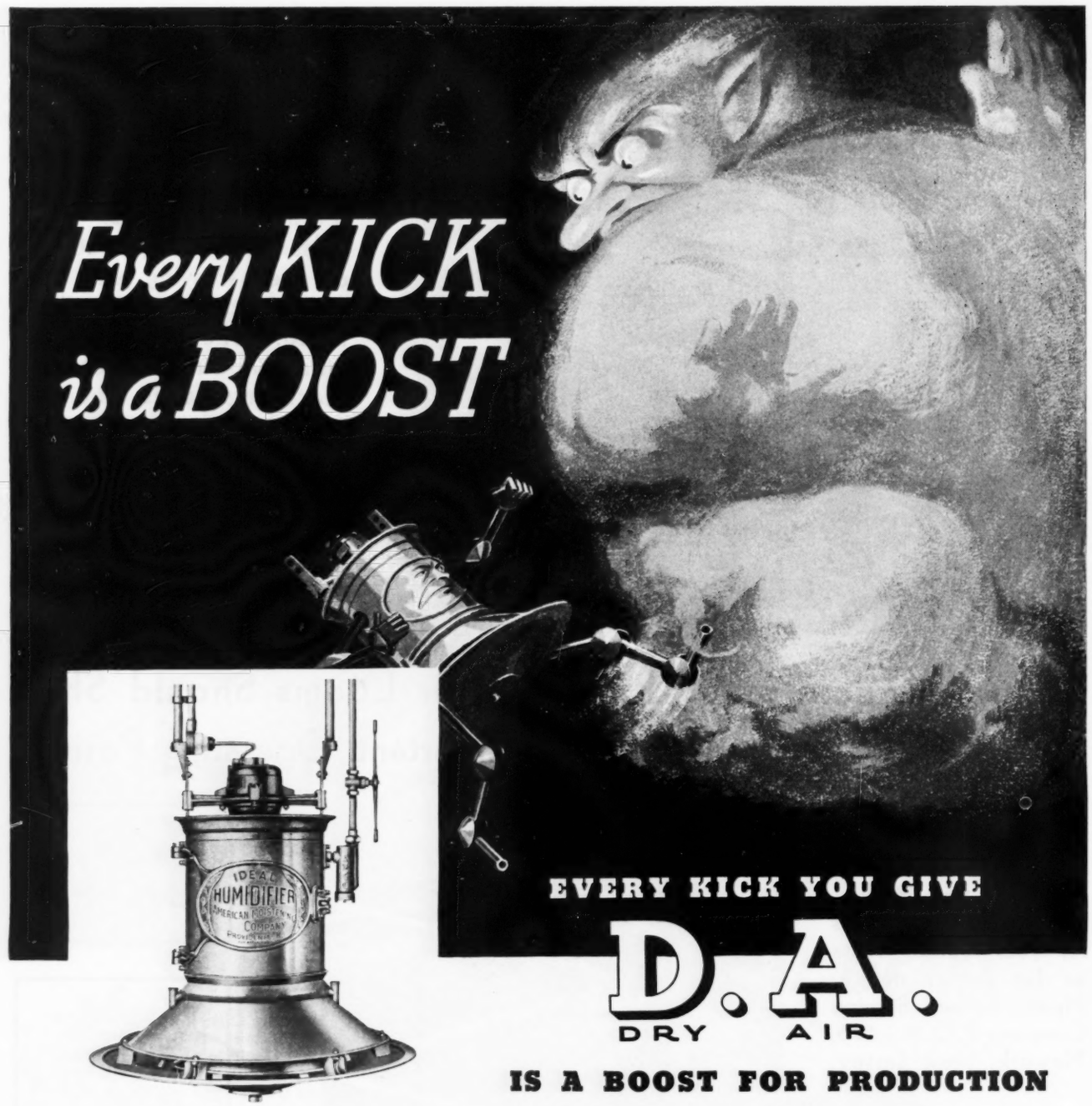
Section of Crompton & Knowles Loom showing Hyatts on Crankshaft, Camshaft, and Rockershaft. Specify Hyatts for your looms. Write us for further details. Hyatt Roller Bearing Company, P. O. Box 476, Newark, New Jersey.



HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS



IS A BOOST FOR PRODUCTION

in your **SPINNING ROOM**
IT MEANS SUCCESS

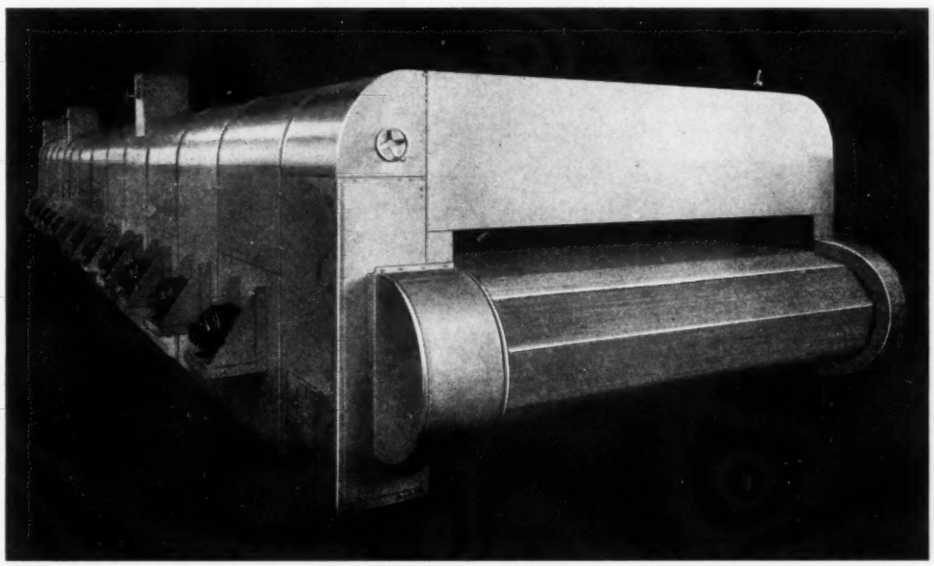
IF IT'S A PROBLEM OF *Humidification* CALL IN THE AMCO ENGINEER

The single factor which has the greatest influence in successful spinning is correct humidity. If Dry Air is allowed to romp unmolested through your spinning room the results are loose, fuzzy strands, brittle fiber which refuse to cling together and lack of proper control of yarn count.

Static electricity, brittle fibers, and dust and fly take their toll of profits. You'll find Dry Air is back of it all. Let Amco Correct Humidity kick out D.A.! Less breakage, higher regain, better control of yarn count and a product of standard high quality will be your reward for calling in the Amco Engineer.

AMERICAN MOISTENING COMPANY
ESTABLISHED 1888
BOSTON, MASS. • ATLANTA, GA. **PROVIDENCE, R. I.** CHARLOTTE, N. C. • GREENVILLE, S. C.

Modern Drying Equipment



One Apron Stock Dryer

NEWEST DESIGN

A leader in its field. This Sargent Stock Dryer has proven its worth to many satisfied users. This general acceptance by owners can be attributed only to the superiority of design, materials and workmanship so characteristic of these machines.

FEATURES:

Centrifugal fans, direct motor connected, New type coils, Sectional Conveyor with speed control.

--NEW PATENTED CURVED TOP--

reduces air resistance—promotes free air flow.

SARGENT PRODUCTS

Acidifying Machine—Automatic Extractor—Automatic Feeders—Backwashers — Backwash Dryers — Bagging Machines—Ball Winder—Carbonizing Dryers — Cloth Dryers — Carbonizing Dusters—Cotton Stock Dryers — Crush Roll Machines — Press Roll Machines — Single Apron Dryer—Skein Dryer—Special Dryers — Wool Dryers — Wool Washers — Yarn Conditioners — Yarn Scouring Machines.

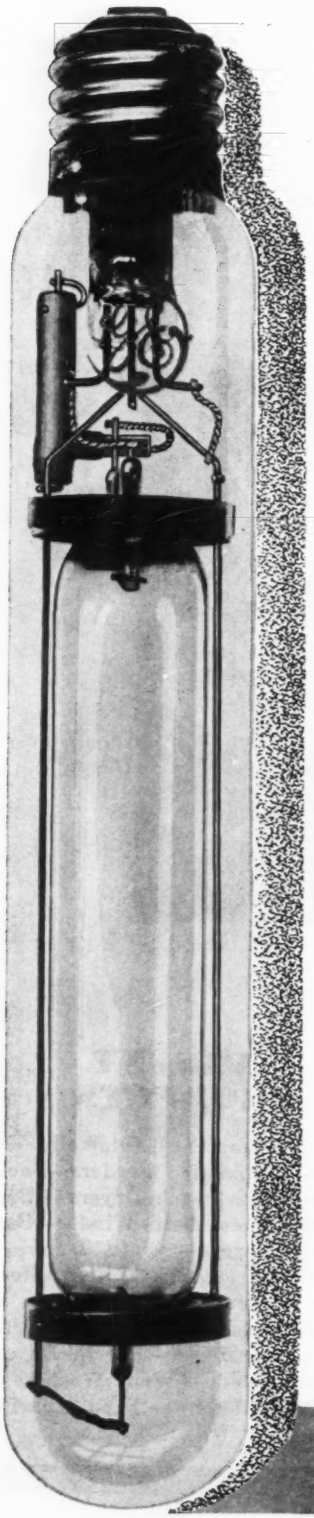
C. G. SARGENT'S SONS CORPORATION

Graniteville, Mass.—Founded 1852

Southern Agents:
Fred H. White, Charlotte, N. C.
Fred P. Brooks, Atlanta, Ga.

Philadelphia Agent:
F. E. Wasson,
Drexel Bldg.

SARGENT IS THE PIONEER AMERICAN BUILDER OF DRYERS



Buy Industry's

MOST EFFICIENT LAMP

The General Electric High Intensity Mercury Vapor Lamp, with its lumen output of 16,000 at 400 watts, makes it possible for industry to double its lighting levels at no increase in current costs.

The lamp is adapted for use on either 110- or 220-volt lines. Most efficient operation with maximum light output is assured by use of the proper reactor or transformer.

The General Electric High Intensity Mercury Vapor Lamp comes with standard Mogul screw base, adapted to either vertical base-up or base-down mounting. Conventional luminaires of proper types are available to provide efficient light distribution.

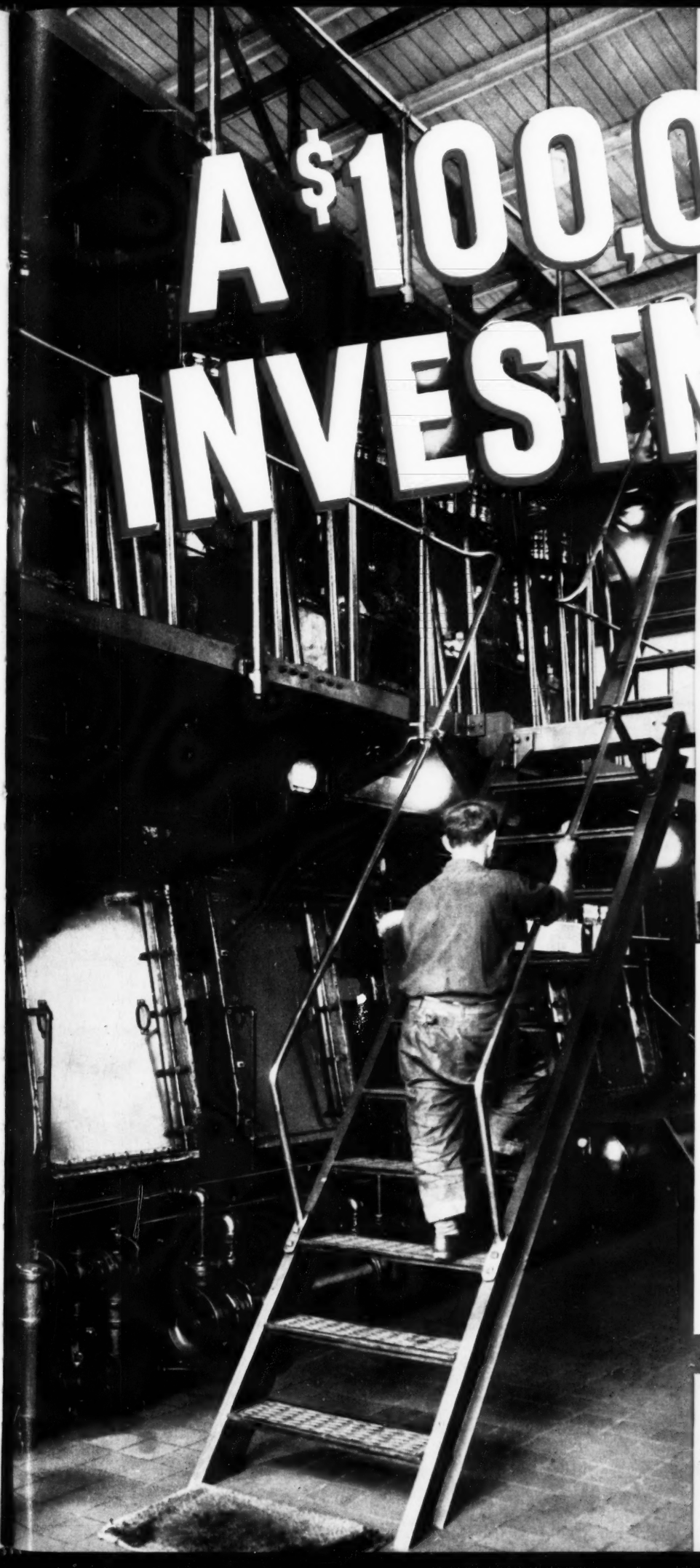
Full details on this lamp may be obtained by writing the General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

GENERAL ELECTRIC VAPOR LAMP COMPANY

672 Copr. 1934, General Electric Vapor Lamp Co.

Order your auxiliary devices which were designed especially for this lamp from the General Electric Vapor Lamp Company.

HIGH INTENSITY *Mercury Vapor Lamp*



A $100,000 INVESTMENT

PROTECTED FOR $100 PER YEAR!

THOUSANDS OF PLANTS, in all industries, find Gargoyle Lubricants the lowest-cost protection for machinery. Extra care in refining produces a premium quality that goes far in retarding depreciation and lengthening the useful life of your equipment. Greater technical skill in applying Gargoyle Lubricants to specific conditions has made Socony-Vacuum a National Institution Serving American Industry.

Figure it for yourself HERE!

CORRECT LUBRICATION
the lowest-cost protection for your biggest investment

1 Your machinery investment $_____

2 Your annual oil bill $_____

3 "Correct Lubrication" $_____

DEDUCT Item 2 from Item 3 and find that your protection costs $_____

READ THE NEXT PAGE— IT'S IMPORTANT TO YOU

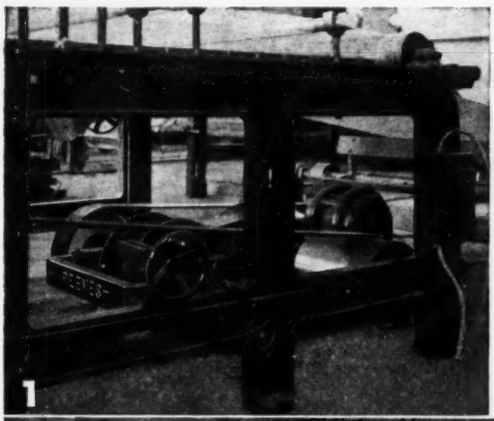
TEXTILE MACHINERY, properly lubricated, saves many dollars per year in power. Often this is accompanied by reduced spoilage and lower oil consumption. Gargoyle Lubricants, with Socony-Vacuum's technical skill, bring such economies.

GARGOYLE Lubricants

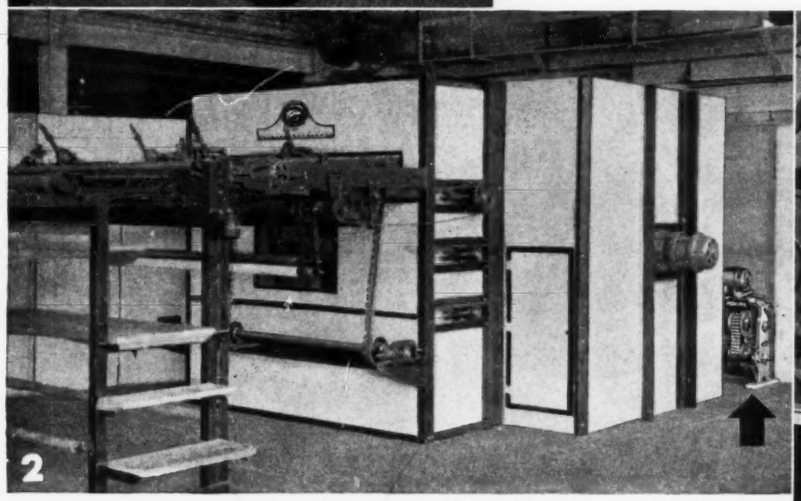
SOCONY-VACUUM OIL COMPANY, INC.

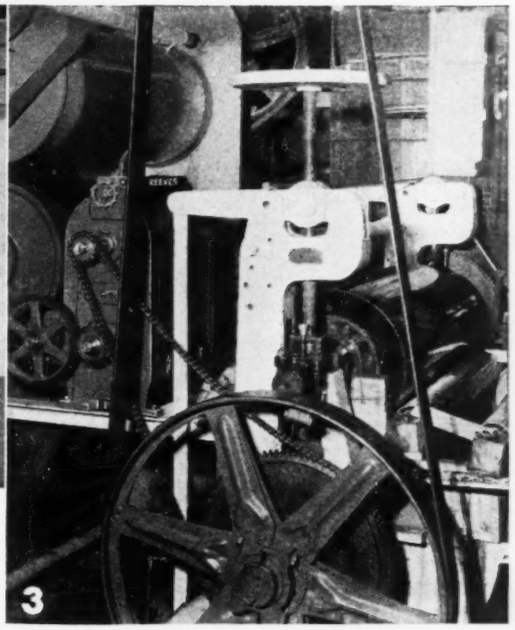
A National Institution serving American Industry

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA



Modern Speed Control PLUS a Complete Engineering Service





THE three applications of the REEVES Variable Speed Transmission pictured here didn't just "happen."

Each one was first carefully worked out in drawings and blue prints by a REEVES engineer—a speed control specialist—who carefully studied his customer's requirements and, from his own broad experience, knew how most successfully to apply the correct unit to meet a specific problem. Available space . . . speed ratios . . . h. p. available . . . driving connections . . . method of control (manual, electric remote, hydraulic, mechanical or electric automatic control) . . . all are matters calling for the exercise of careful and thorough engineering judgment.

Behind every REEVES installation—more than 30,000 of them in over 16,000 plants—is *manpower*, in factory, laboratory and, of primary importance, in the field. Many of these men are veterans of 8, 10, 15 and more years of specialization in speed control engineering.

REEVES engineers have helped make possible the development of many cost reducing machines and processes in the textile industry. For this reason alone the REEVES Transmission is the approved method of obtaining the accuracy and precision required in speed adjustability for many operations.

1 SLASHER—close up view showing application of REEVES Variable Speed Transmission with individual motor drive. Permits selection of exactly the proper rate of yarn travel over the cylinders to match every changing requirement. Insures delivery of pliable, elastic warp because speed adjustability is infinite, instant, accurate and positive.

2 DRYER—regulated by REEVES Transmission, vertical open design, with Electric Remote Control. Merely by pressing a convenient push-button, operator can speed up or slow down Dryer to secure the correct travel rate required for different widths and weights of fabrics. Cloth delivery may be varied accurately on this Dryer from 6 to 48 yards a minute.

3 WATER MANGLE—operated in range, with peripheral speeds of top and bottom rolls synchronized through a REEVES Transmission. By turning a handwheel, top roll is regulated to lead or lag behind lower roll by any required degree for kind of finish desired. REEVES Speed Control also eliminates excessive drag which twists and turns filling yarn between warp yarn.

REEVES
Variable Speed Transmissions

REEVES PULLEY COMPANY
Columbus, Indiana

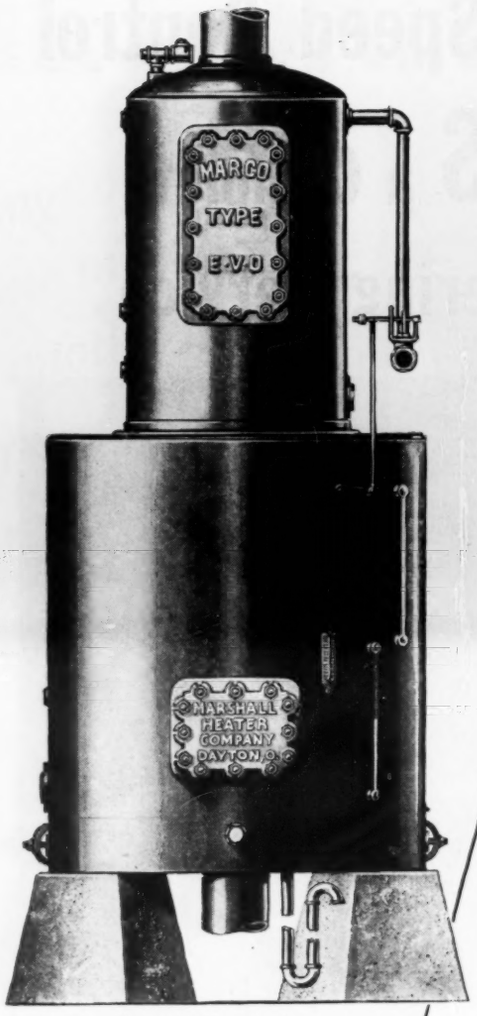
Send information on applying speed control in the textile industry as contained in your new Speed Control Handbook T-36.

NAME .....

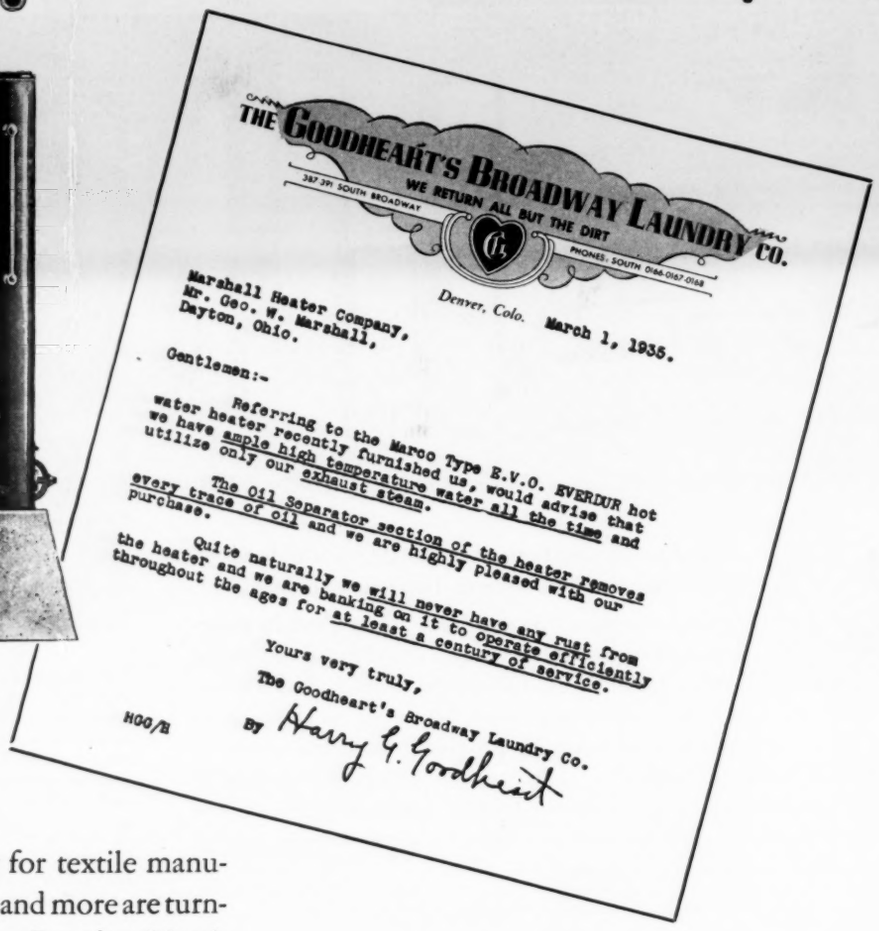
COMPANY .....

ADDRESS ..... (1-36)

"Open Type" Heater of *non-rust* Everdur wins high praise from Colorado Laundry



Marco "open type" hot water heater of non-rust Everdur Metal, similar to the one installed in Goodheart's Broadway Laundry, Denver. Designed and built by Marshall Heater Co., Dayton, Ohio.



THE GOODHEART'S BROADWAY LAUNDRY CO.
WE RETURN ALL BUT THE DIRT
387 39th SOUTH BROADWAY
PHONES: SOUTH 0166-0167-0168

Denver, Colo. March 1, 1935.

Marshall Heater Company,
Mr. Geo. W. Marshall,
Dayton, Ohio.

Gentlemen:-

Referring to the Marco Type E.V.O. EVERDUR hot water heater recently furnished us, would advise that we have ample high temperature water all the time and utilize only our exhaust steam.

The Oil Separator section of the heater removes every trace of oil and we are highly pleased with our purchase.

Quite naturally we will never have any rust from the heater and we are banking on it to operate efficiently throughout the ages for at least a century of service.

Yours very truly,
The Goodheart's Broadway Laundry Co.
By Harry G. Goodheart

HGG/E

Clean hot water saves money for textile manufacturers, too. That's why more and more are turning to heater shells of rustless Everdur Metal.

Everdur is copper, scientifically alloyed with silicon to provide the strength and welding properties of steel. Thus, this Anaconda Metal fulfills *every requirement* for rugged, long-lasting heater shells which will provide rust-free hot water indefinitely. Everdur heaters are available from leading equipment manufacturers.

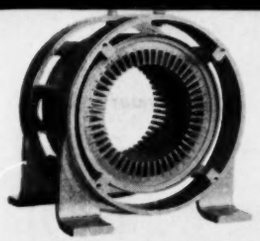
ANACONDA
from mine to consumer

EVERDUR METAL

"Everdur" is a registered trade-mark identifying products of The American Brass Company, made from alloys of copper, silicon and other elements.

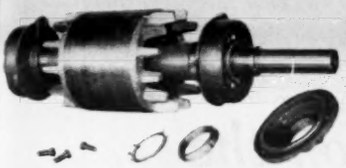
THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities
In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario

EVERDUR METAL *for* HEATERS

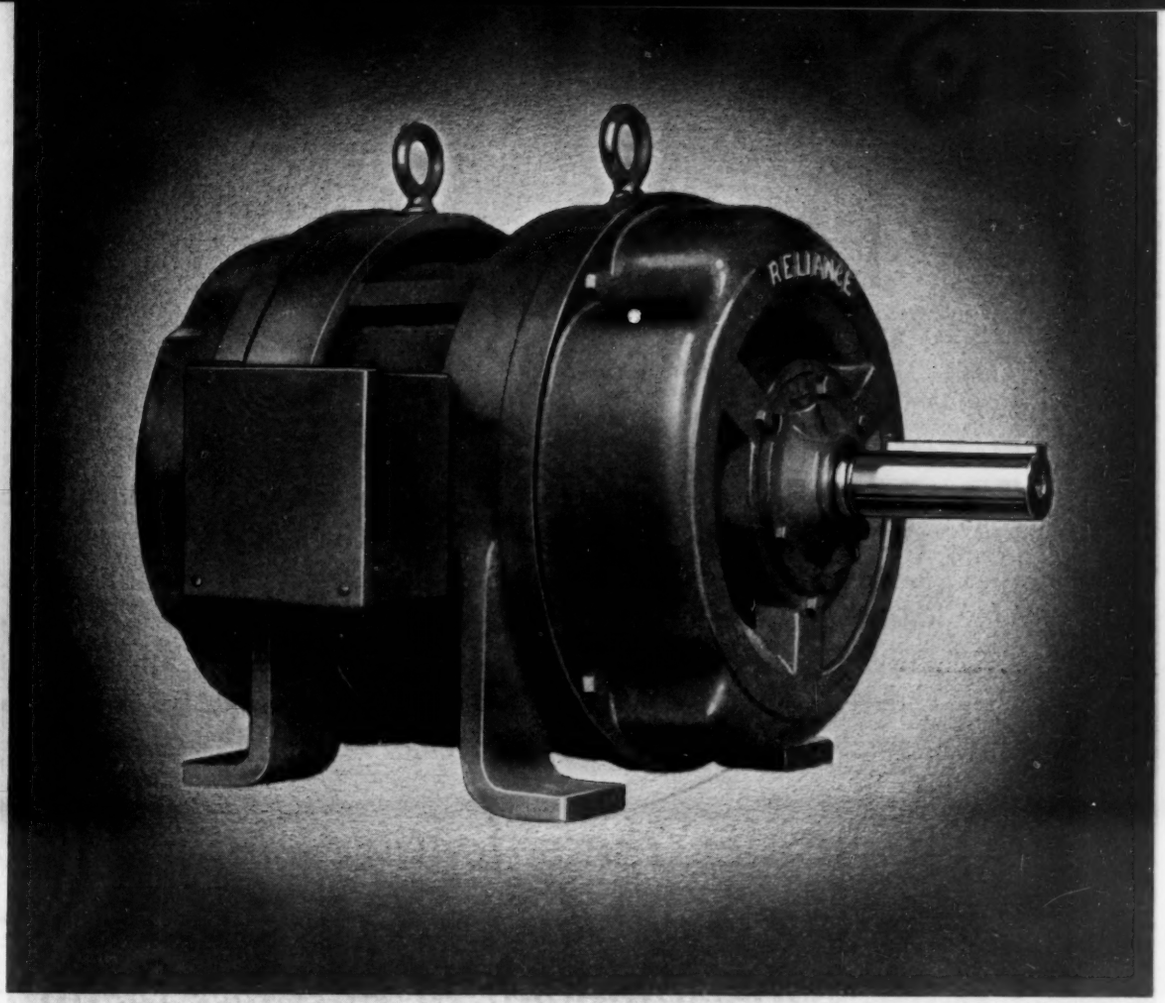


Rugged all-steel frames are used for all sizes. They insure permanent alignment of the stator core within a rigid housing. Air gaps stay uniform.

Three varnish treatments, three over-night bakings, and a coat of protective enamel provide windings of semi-enclosed slot stators with unusual protection against the destructive influence of oil, dust and moisture.



Rotors are trouble-proof. Bars, short-circuiting rings and fans are cast under high pressure as an integral section of aluminum. Dust-tight cartridges protect the ball bearings from dirt.

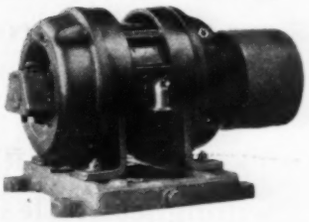


Type AA Squirrel-cage Induction Motor with Ball Bearings
(Frames 202-405)

Reliance Design PROMOTES STEADY, LONGER RUNNING

Thoroughness — a good old Anglo-Saxon word. Applied to Reliance design, workmanship and inspection, it points to dependability and long life. Thorough-going strength in every part, suggested instantly by the rugged all-steel frame used in all sizes. Stators built and wound with extreme care . . the windings insulated against water, dust and other external agencies by the Duraseal process, which includes three coats of varnish and one of enamel, with over-night bakings in between. Cast-type rotors with sturdy ball bearings, the bearings safeguarded from dirt by dust-tight cartridges. These and other features make for long, steady runnings on tougher jobs in the textile field. For details see our *new* Bulletins 118 and 119.

Textile Motor for 2-frame drive, ceiling mounting. Double shaft extension, single pulleys, ring-oiling sleeve bearings.



Sleeve-bearing Textile Motor having bearing housings packed with wool yarn for purposes of oil lubrication. Stator connections are covered with a compound formed to a smooth, hard surface to prevent the collection of lint.

RELIANCE ELECTRIC & ENGINEERING CO.
1088 Ivanhoe Road, Cleveland, Ohio
Branches: Birmingham : Boston : Buffalo : Chicago
Cincinnati : Detroit : New York : Philadelphia : Pittsburgh
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RELIANCE A-C D-C MOTORS

The American Business Paper

ONE of the vital reasons for the tremendous commercial development in the United States is the American business press. The American business man, manufacturer, wholesaler or retailer, is presented each month with a veritable encyclopedia of information in his chosen field. To the schools of America, and the daily press, as instruments of democratic education must be added our business press with its specialized service.

Consider these features of well-conducted business papers, and their influence on the development of business technique

- - - NEWS which, in the business paper, means the presentation of all angles of controversial matters; the rapid dissemination of information about new or improved products; the spread of knowledge concerning shifts in personnel in an industry, so important to all concerned; the exhaustive studies of conditions and trends which show in what directions industry is moving; the co-relation of specific developments in an industry with general movements in business; the technical information which, in any one issue of a competent business paper, might amount to as much as an individual could hope to gather in a lifetime; and over and above all this detailed material is the editorial comment, sifting, comparing, commenting, searching out the basic elements, organizing the mass of news and information into compact, usable generalizations.

The American Business Paper is one of the evidences of America's willingness to learn. Like its widespread system of democratic education, the Business Paper serves an industry's need for impartial information, placing at each reader's command the same accumulation of data, for such use as he may make of it.

WHEN IS THE ICE TOO THIN?

● When is the ice too thin for skating? *When you fall in!*

And when is the supply water used in textile wet-processing too hard? *When you fall into unnecessary expense because of it.*

Both questions are completely answered by the *results.* But there is one important difference between the two situations. Out skating, when the ice gives way and you tumble into the freezing-cold water, *you know it!* But in the complicated structure of mill operation, when this same untrustworthy water piles up operating costs, you're not so apt to blame the *water* for the trouble.

The fact is that supply water must be absolutely clear, soft, and colorless to meet modern-day requirements for fine finished goods. Textile experts will tell you that practically *all* mill water supplies must be properly filtered or softened, or perhaps even further treated, to enable finished fabrics of high quality to be produced.

Because of this all-important fact, more than 1,000 textile mills now use Permutit Water Conditioning Equipment.

The benefits from such equipment are immediately noticeable. There are fewer reruns and rejections, and less yarn breakage . . . because soft water eliminates harsh insoluble curds, and fibres come through clean and pliable. Soap, soda and bleach are saved. And boiler-tube repairs and replacements are reduced to a minimum.

Wouldn't you like to know more about water conditioning and how it can benefit your mill? Mail the coupon below for information. Learn how Permutit equipment *pays for itself* in two short years.

Permutit Water Conditioning Equipment may now be purchased under the terms of the National Housing Act. These loans are not made by the Government, but by your own banker . . . or they can be arranged through Permutit. The terms of payment allow gradual liquidation over a period of years, so your payments are more than met by the savings effected by Permutit.

Permutit
Water Conditioning Equipment

THE PERMUTIT COMPANY, Dept. B1, 330 West 42nd St., New York City

Please send me, without obligation, complete details about the purchase of Permutit equipment under the terms of the National Housing Act.

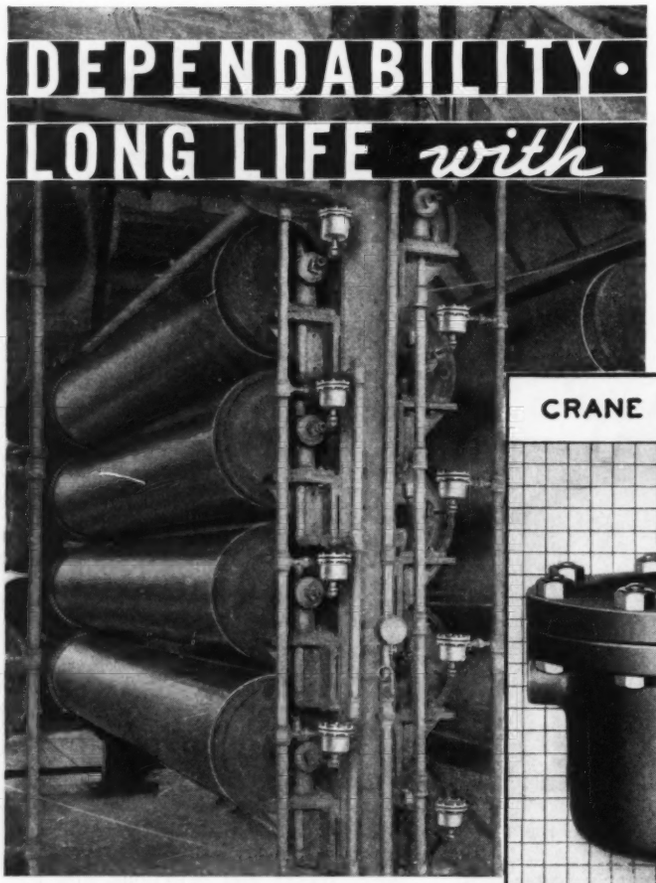
Name ----------

Position ----------

Company ----------

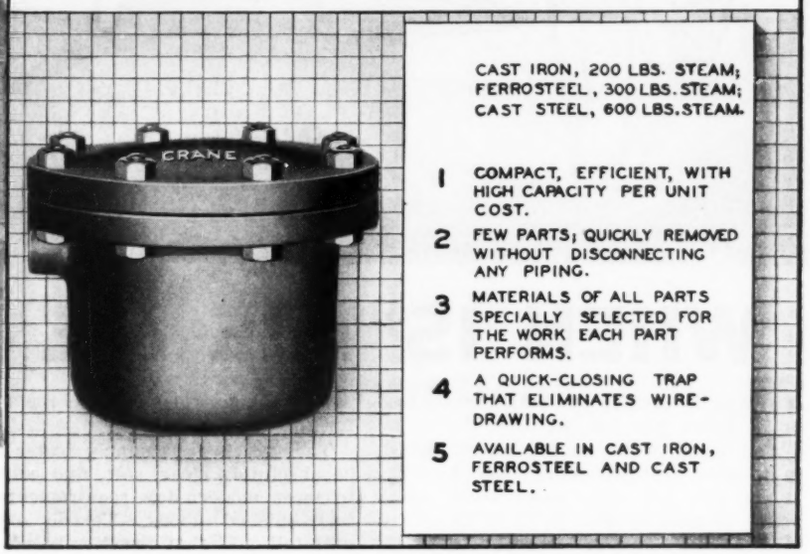
Address ---------- City ----------

DEPENDABILITY· LONG LIFE *with* Crane Steam Traps



These No. 981 Crane traps applied to individual dry cans speeded the operation 10 to 15%.

CRANE INVERTED OPEN-FLOAT STEAM TRAP



CAST IRON, 200 LBS. STEAM; FERROSTEEL, 300 LBS. STEAM; CAST STEEL, 600 LBS. STEAM.

1. COMPACT, EFFICIENT, WITH HIGH CAPACITY PER UNIT COST.
2. FEW PARTS; QUICKLY REMOVED WITHOUT DISCONNECTING ANY PIPING.
3. MATERIALS OF ALL PARTS SPECIALLY SELECTED FOR THE WORK EACH PART PERFORMS.
4. A QUICK-CLOSING TRAP THAT ELIMINATES WIRE-DRAWING.
5. AVAILABLE IN CAST IRON, FERROSTEEL AND CAST STEEL.

● Profiting by all the advantages of inverted open-float design, the Crane steam trap gives you an extra measure of dependability and long life because it is specially constructed to withstand the severest kind of service. Automatically and quickly it removes condensate with the highest degree of efficiency. Its positive, quick-closing action prevents wiredrawing. The metals of which its working parts are made insure its continued operation year after year, at minimum maintenance cost and maximum efficiency.

As with all Crane valves, fittings and piping materials, there is a stock of traps as near you as your telephone. When confronted by a condensate problem, you can obtain all the equipment you need to overcome it by calling the nearest Crane branch or distributor. There is a Crane valve or fitting for practically every purpose. It is paying many plants to standardize on them for ready supply and absolute uniformity.

Let Profits Pay for Plant Improvements. Use the Crane Finance Plan.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILLINOIS • NEW YORK: 23 W. 44TH STREET

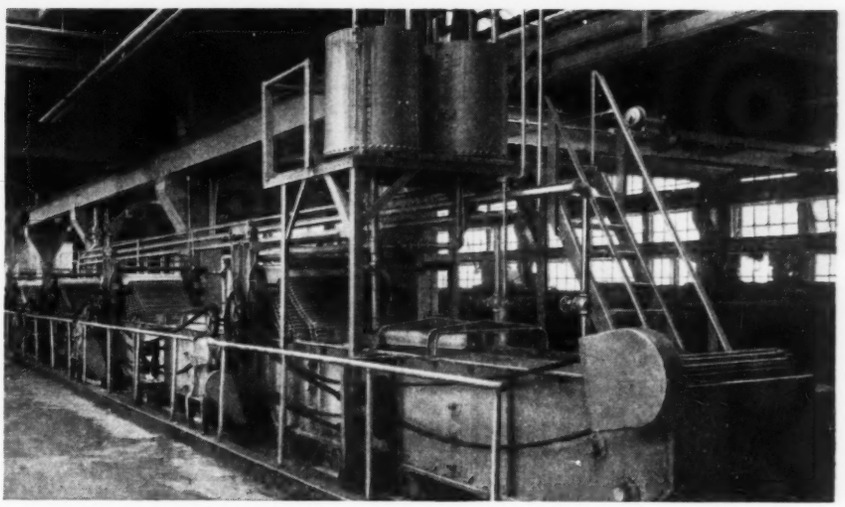
Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

"We're Enthusiastic"

. . . SAY THE OWNERS OF THIS 75-FOOT BLEACHER-DYER-WASHER MADE OF

MONEL METAL



Continuous bleaching, dyeing and washing machine, 75 ft. long x 3½ ft. wide x 3½ ft. deep at the plant of the Olson Rug Company, Chicago, Illinois. Monel Metal is used for all parts of this apparatus which require the use of corrosion-resistant materials. Some of the more important parts for which Monel Metal is used include the conveyor, tank linings for bleaching, dyeing and washing tanks, heating coils and accessory parts. This machine is used for dyeing all types of colors.

"We use Monel Metal in practically every piece of our dyehouse equipment"

OLSON RUG CO.

THAT enthusiasm for Monel Metal is all the more significant when you realize its source . . . the Olson Rug Company, largest makers of rugs, dealing direct with the home.

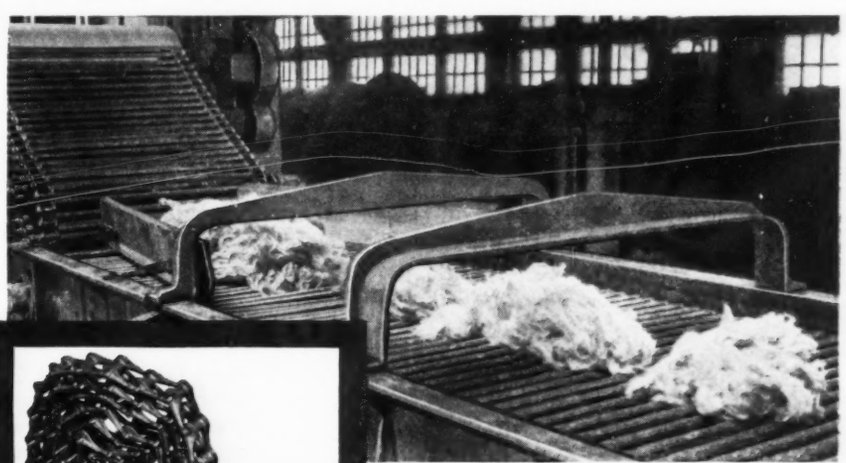
And what a line-up of equipment Olson uses: Monel Metal-lined dye-tanks, bleach-tanks and wash-tanks, Monel Metal continuous conveyor, Monel Metal shafts, rolls, valves and piping, Monel Metal heating coils, angle guides, castings and accessories. Olson built their own equipment.

Olson, as you know, features a wide range of rug colors, and does custom work to each individual purchaser's order. That calls for frequent changes, and for many types of dyeing: direct, acid, basic and acid chrome.

Since Monel Metal resists corrosion from all kinds of dye material, never rusts, and cannot absorb dyestuffs it facilitates all activities at the Olson Rug Company.

It never needs extended clean-ups between batches, nor long boil-outs. Monel Metal is also resistant to the solution used in bleaching, stripping and scouring of wool. Its tough strength exceeds the strength of structural steel; so wear and repairs are reduced to the minimum. And of course there are never any splinters on its smooth, hard surfaces.

If you'd like to know more about the uses of Monel Metal send for free pamphlet, "The Application of Monel Metal and Nickel to Industrial Processing Equipment."



● *Close-up view showing Monel Metal conveyor in continuous bleaching, dyeing and washing machine at the plant of the Olson Rug Company. See other illustration for other details.*

● *Forged Monel Metal conveyor links (2½" pitch). Manufactured by Steel Improvement and Forge Company, Cleveland, Ohio. Monel Metal attachment link type, also available.*

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET, NEW YORK, N. Y.

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

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PRODUCTION economies are important profit factors and the economies made possible by using the brand of fuel best suited to your needs are well worth looking into.

The General Coal Company offers the textile industry a coal to fit every purpose and every analysis requirement. It occupies the unique position of being able to meet a diversity of fuel requirements from a centralized source of supply.

Each General Coal Company brand represents the utmost in its particular analysis—and there is a General Coal Office located within a convenient distance of your plant. Communicate with that nearest you for co-operation in securing those "extra profits in the coal pile."

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Our sulphonated olive oils are made from pure olive oil. They are extremely soluble, high in SO_3 content and low in neutral fat.

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Monopole Oil is a double sulphonated castor product and is also available in special types adjusted to specific requirements.

No matter what your requirements are we can supply you. Samples of any product will be sent on request. If you have a special problem our laboratories are at your disposal without cost or obligation.

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DON'T BE A LONE WOLF

Let COLLECTIVE THINKING
Solve Your Sizing and Finishing Problems

Chemical Research and the increased tempo of style changes have created so many new textile processing problems, that the plant chemist or processing foreman that tries to solve them all by himself is often seriously handicapped.

Don't be a lone wolf. Follow the precedent of many other men in responsible positions, both business and professional, and let COLLECTIVE THINKING solve your sizing and finishing problems. Utilize the experience and knowledge of others as well as your own.

CHEMICALS

Sizing and Finishing Gums and Compounds • Soluble Gums • Softeners • Soluble Oils • Tallow • Waxes • Soaps • Flour • Dextrines • Starches • Pigment Colors and Lakes • Ammonia • Acids • Blue Vitriol • Borax • Bichromate of Soda • Bichromate of Potash • Liquid Chlorine • Chloride of Lime • Caustic Soda (solid and flaked)

A-H Consultation Service offers you this outside experience and specialized knowledge free of charge. It is rendered by a staff of specially trained chemists, assisted by a completely equipped, modern laboratory and a company experience of 121 years. They can assist you in checking the efficiency of routine processing methods as well as in the solution of new problems.

Our local representative will call on request.

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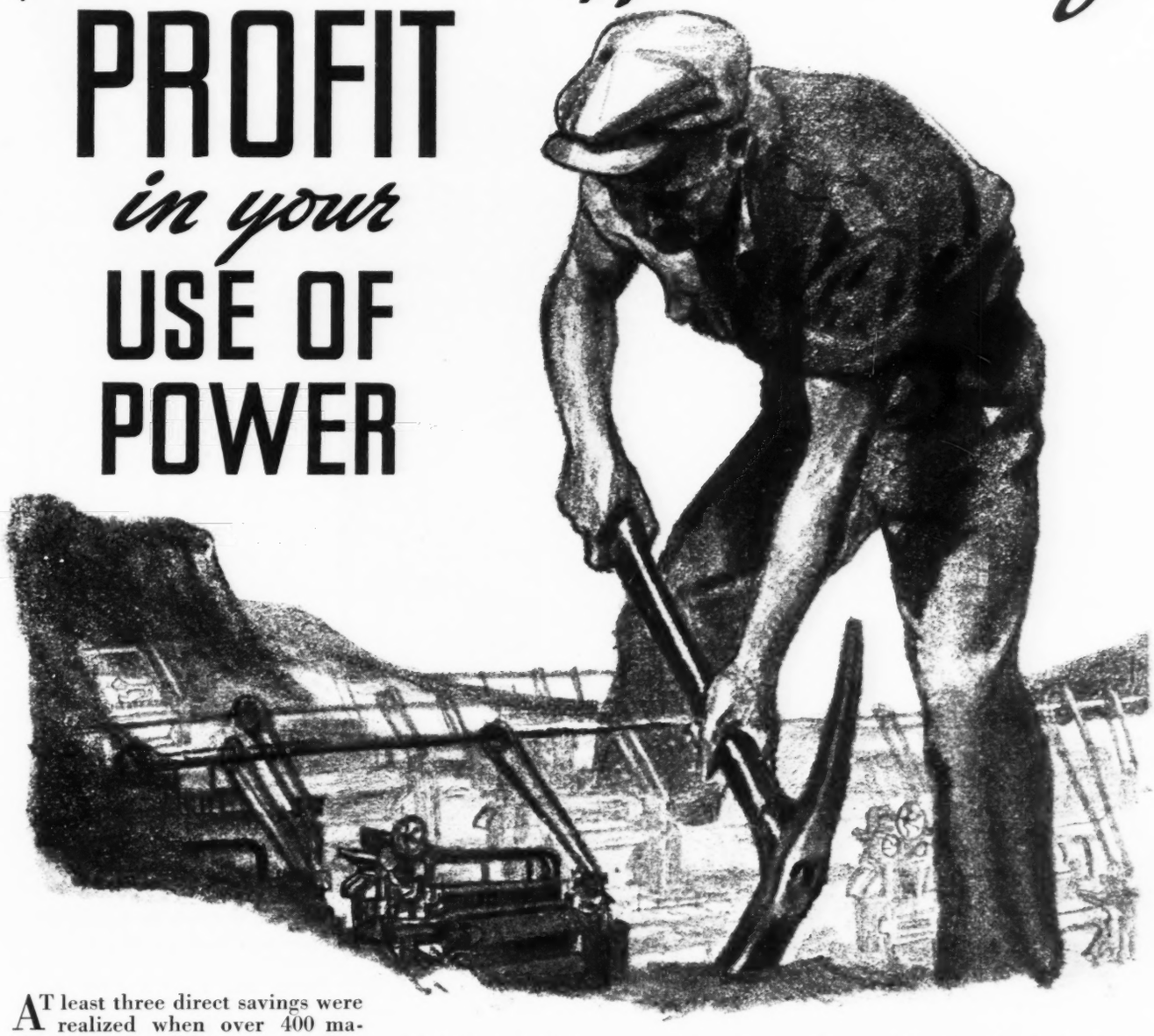
PROFIT *in your* USE OF POWER



AT least three direct savings were realized when over 400 machines in a well-known manufacturing plant were installed for Modern Group Drive operation, after many months' experience with a large trial installation:

A. $17,712.00 saved in capital investment.
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C. 19% of the power cost saved.

Installation cost was $12,960.00 for Modern Group Drive, against $30,672.00 for individual motor drive. Initial savings amounted to considerably more than the entire M. G. D. installation cost. The additional earnings made possible by this installation amortize the investment every 3½ years.

Find out now whether there is an untapped source of profit in *your* use of power. A Power Transmission Counselor will assist you on request and without obligation. Operating out of 60 industrial centers, these men are organized and trained to save power dollars through the sound application of Modern Group Drive principles, in cooperation with local plant, public utility and consulting engineers. There is one near you.

Meanwhile, for the basic facts about Modern Group Drive, based on case studies in many industries, send for a free copy of the famous Red Book, "A Practical Analysis of Some Fundamentals of Industrial Power Transmission."

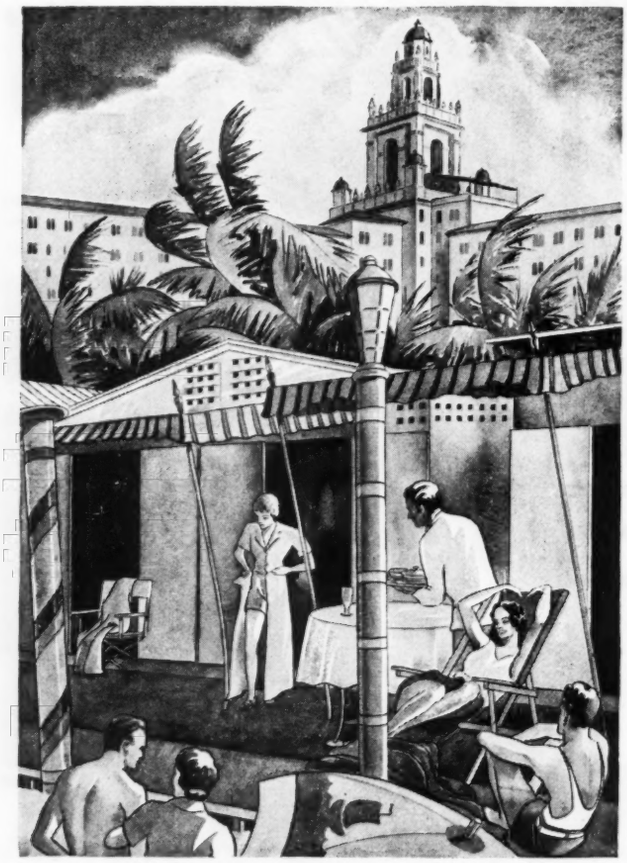
POWER TRANSMISSION COUNCIL
1 ATLANTIC STREET, STAMFORD, CONN.

A research association of producers and distributors of power, power units and mechanical equipment for the transmission of power

MODERN PTC GROUP DRIVE

A POWER DOLLAR SAVED IS A PROFIT DOLLAR EARNED

AMERICA'S FINEST OCEAN FRONT HOTEL



Socially Comfortable

" . . . Socially comfortable, if you know what I mean . . . a lot of our own crowd . . . and the bunch we barged around with on the Riviera. They're all here at the Roney Plaza, for if you really go in for Miami Beach resort life in the finer sense, you spend most of your time here anyway.

"The Beach and Cabaña Club are gorgeous. Our suite overlooks the ocean, the service is smartly continental and I *guessed* the *chef's* name after our *first* dinner.

"Promised to golf at two with John, then to dance in the Palm Gardens at five, so more of this later. Hurry down . . . you're missing the best winter *ever*."

Roney Plaza

MIAMI BEACH

FOR PARTICULAR INFORMATION AND RESERVATIONS ADDRESS
EDWARD B JOUFFRET, MANAGING DIRECTOR, RONEY PLAZA, MIAMI BEACH, FLORIDA
or New York office, 521 Fifth Avenue, Suite 2421; Chicago office, 180 North Michigan Avenue, Suite 1015

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Phosphamized FINISHING OILS

New development prevents

RANCIDITY--ODORS--DISCOLORATION

---by removing the cause!

Building on their previous successes in minimizing oxidation, rancidity, odors and discolorations in finished goods, Onyx chemists now bring you PHOSPHAMIZED Finishing Oils . . . the most effective process ever developed for the control of oxidation.

"Phosphamizing" is an additional process applied in the manufacture of present Onyx Finishing Oils—on specification—at slight additional cost. Every mill benefit of your regular Onyx Finishing Oil is maintained—plus the added value of "Phosphamizing."

Benefits of PHOSPHAMIZING!

PHOSPHAMIZED Finishing Oils prevent oxidation, eliminating rancidity, odors and discoloration of finished goods on the shelf or in storage.

A considerably softer hand is obtained; constant lubricity is maintained; prevents change in film form on exposure; assists penetration. Every superb quality of the finished goods is preserved—without variation—thruout long periods of storage, under the severest conditions of temperature, dampness or dryness.

To get the benefits of this new development, order your next Onyx Finishing Oil . . . PHOSPHAMIZED. Meanwhile, write us in detail, for test sample and further information.

ONYX OIL & CHEMICAL CO.
Jersey City, N. J.
Specialists on Finishing Materials.
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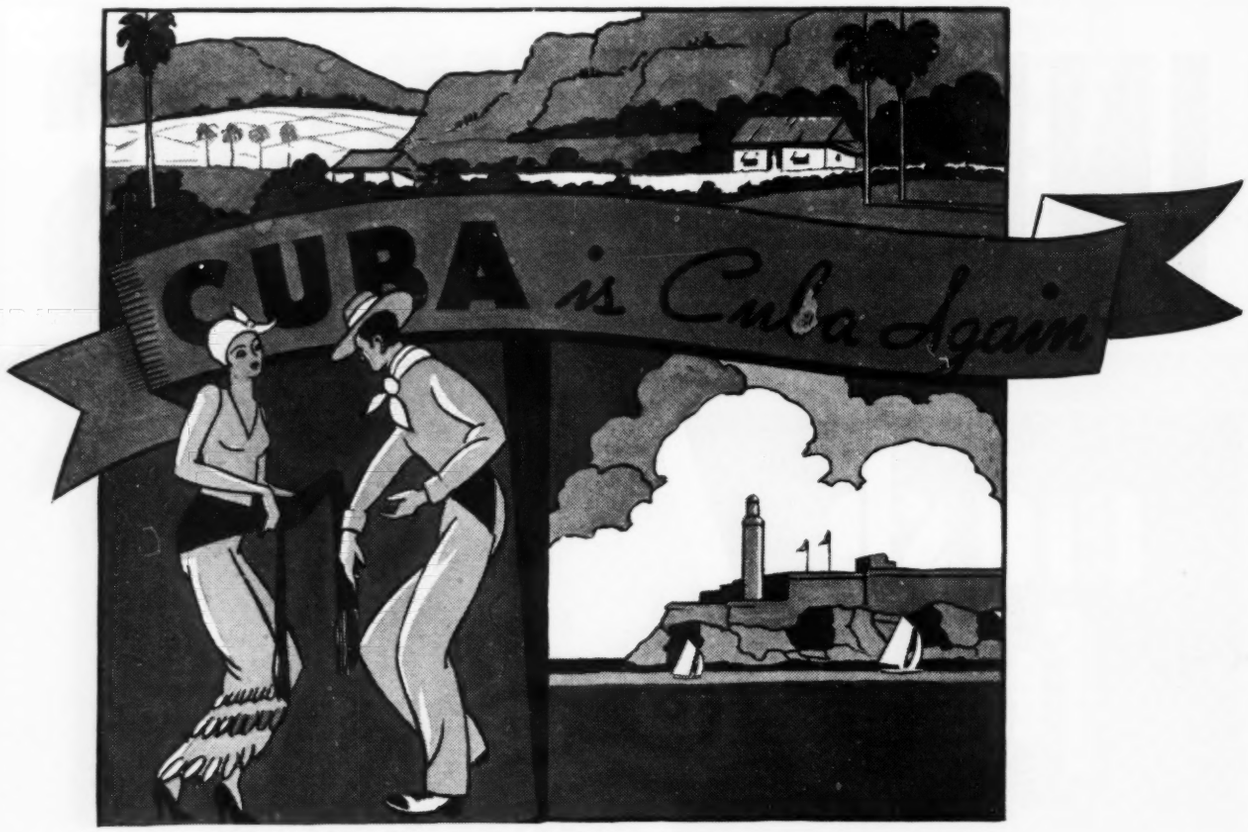


ACHILLE BORGO
Managing Director

CONSTANTINO LOPEZ
Assistant Manager

OPEN THE YEAR ROUND

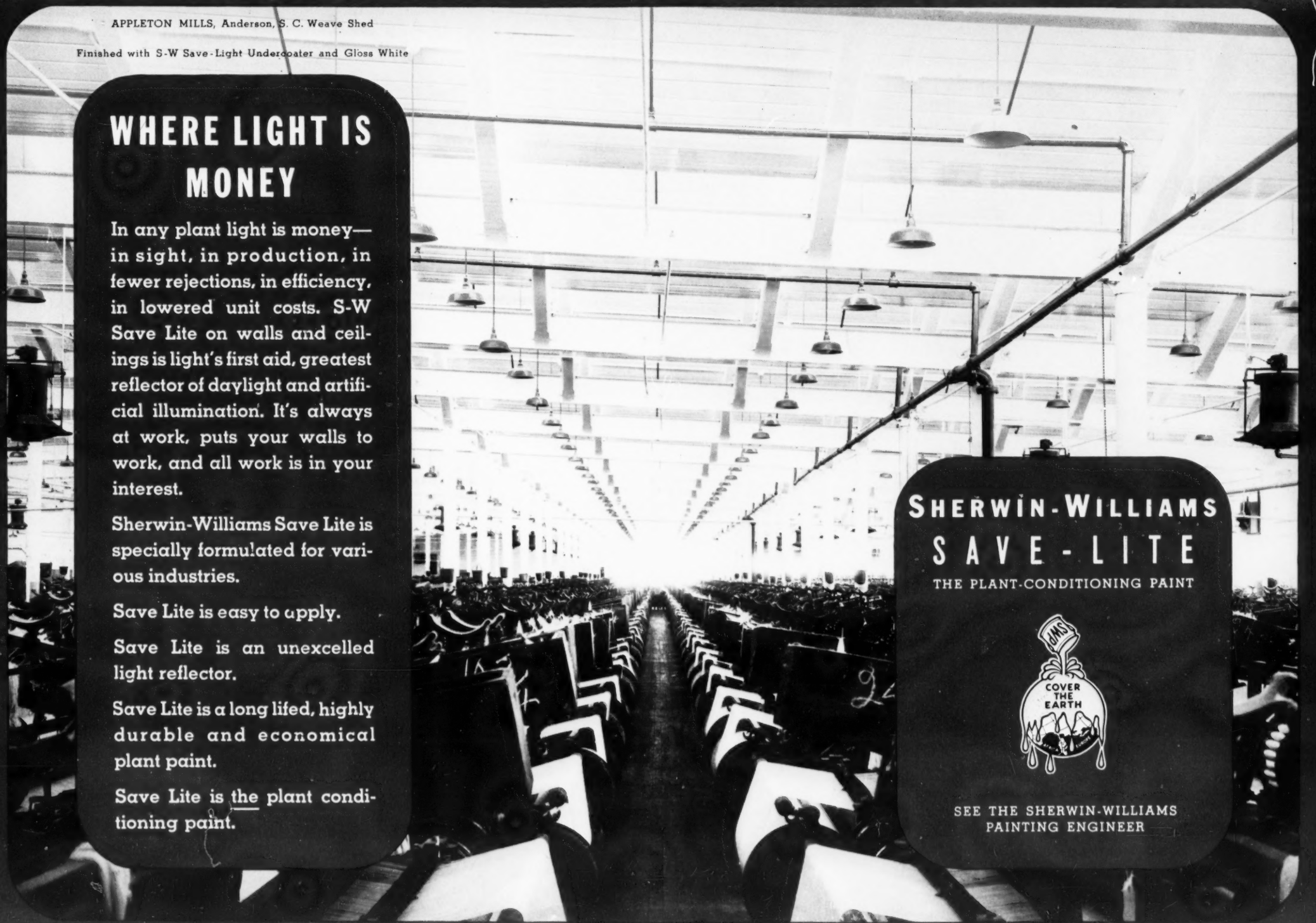
The SEVILLA BILTMORE HAVANA

For information, rates, reservations, inquire of any travel agent . . . or address Sevilla-Biltmore Hotel, Havana, Cuba. Cable address: "Sevilla".

HAVANA'S Sevilla-Biltmore—the most celebrated hotel in the West Indies—is open again! Always a favorite hostelry of distinguished travelers, the Sevilla-Biltmore is gayer and more charming this year than ever before . . . . with its smart, new decorations throughout, improvements in modern comforts and structural changes. Perhaps you remember the former Sevilla bar. And the famous Patio, where gathered the travel-wise from all parts of the world. These features have been expanded into even more ample luxuries. Once more Havana's brilliant social life is dominated by Sevilla-Biltmore gaiety.

Under its new policy and regime (with the renowned host, Achille Borgo, as managing director) the hotel will remain open throughout the year. While cuisine and appointments are dominantly French, the Sevilla-Biltmore is hospitably American in its comforts, conveniences and—yes—cocktails. Of course the courteous staff speaks English. An innovation in service is a special department to handle all technical and travel details for its guests—such as attending to luggage and customs inspections, entry of personal cars, arrangements of parties beyond the hotel, tours of the island and any other personal service desired.

It's still the famous Sevilla-Biltmore—tallest building on the Prado, in the heart of Havana's beautiful downtown area—but it has many new attractions to enhance its old charm. With the Sevilla-Biltmore's reopening, Cuba is again *really* Cuba!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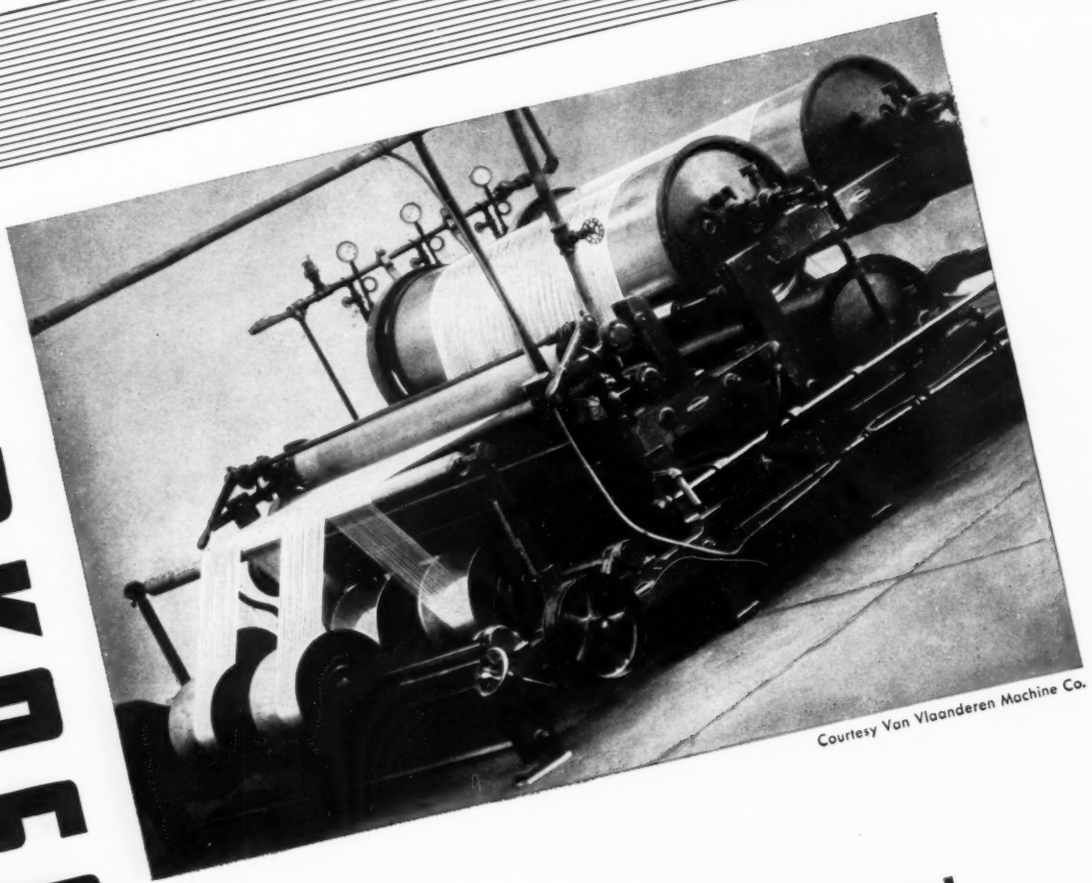

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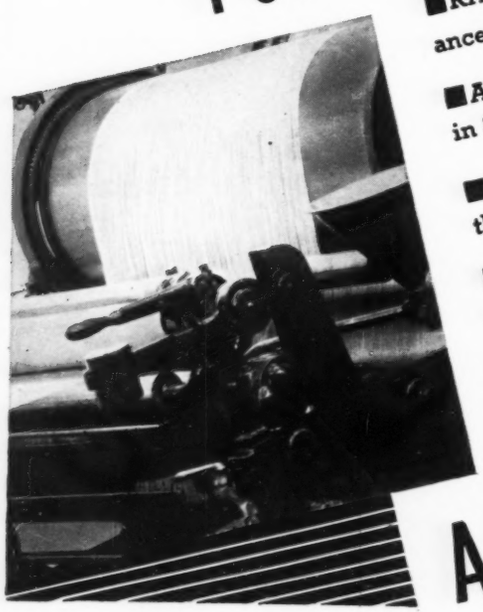
■We'll gladly recommend ARKOSOL—in complete formula—for sizing Rayon warps and for setting twist in filling for Rayon Crepes.



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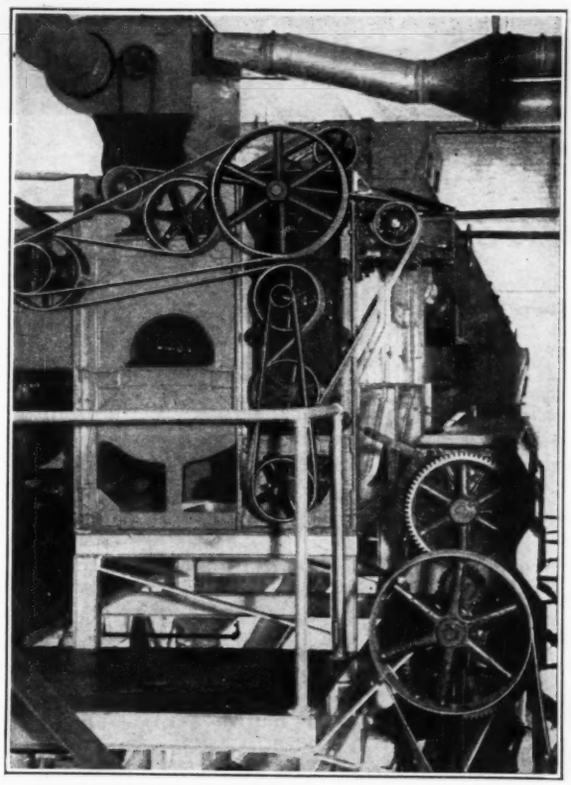

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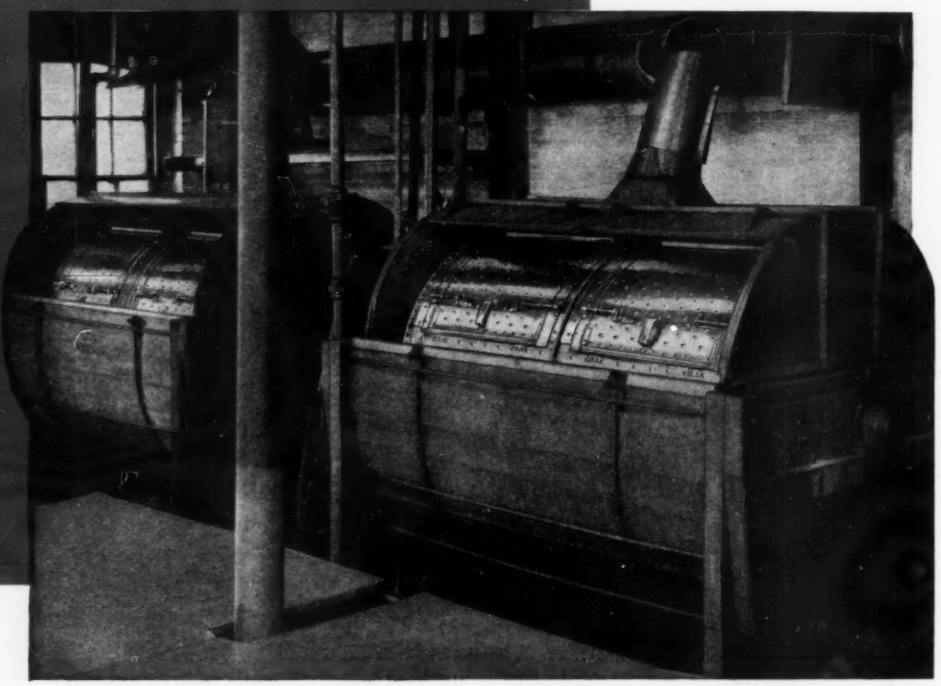

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COTTON

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No. 1

Robert W. Philip,
Editor

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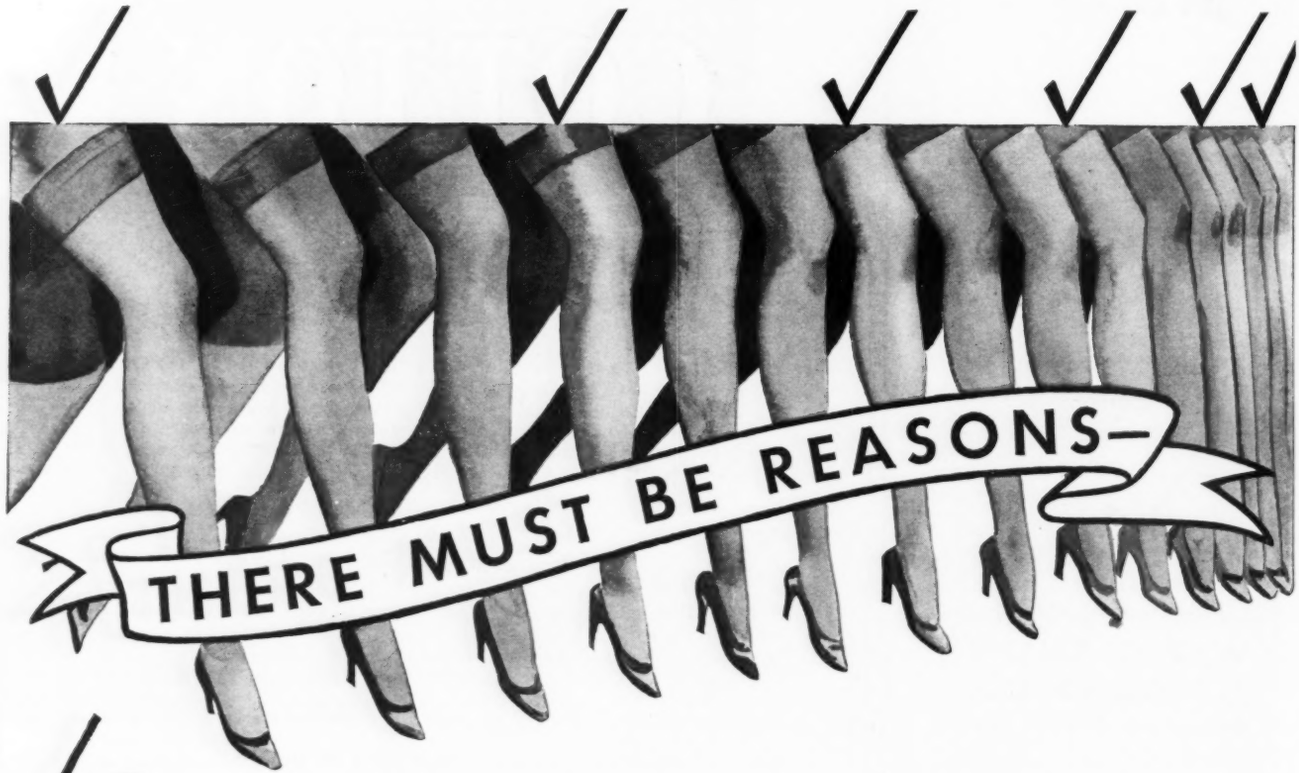

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Vol. 100
No. 1

COTTON

January,
1936

Industry-Wide Pledge on Hours and Wages as Proposed by Institute

THE OUTSTANDING development in cotton-textiles in December was the program of The Cotton-Textile Institute calling upon all mills in the country to pledge the maintenance of the basic provisions of the industry's former code. The announcement, issued on December 18 by Dr. Claudius T. Murchison, president of the Institute, is reproduced herewith.

Substantially, the pledge constitutes a voluntary agreement, in the light of similar pledges by other mills, not to exceed two 40-hour shifts per week for productive machinery, nor the 40-hour maximum work week for employees; to pay at least code minimum wages; and to employ no child labor.

It is a fact recognized throughout the country that since the collapse of NRA earlier in the year, the cotton-textile mills as a whole have been maintaining, voluntarily, these progressive phases of the principles of Code No. 1 under which they operated under NRA. There have of course been departures from these principles, in individual cases, notably with respect to the item of machine hour operation. Individual plants and organizations have, under special conditions, put on a third shift of 40 hours. Perhaps others have lengthened the work-week of operatives, and maybe a few have done so without maintaining the hourly minimum rates—but by far such departures as have occurred have been in the direction of additional machine hours, with retention of the hourly wage rate. Even so, such breaking over has been done by a comparatively small percentage of the industry, and carefully compiled surveys have indicated a voluntary observance of the hour and wage standards of the former code by well over 90 per cent of the industry's equipment. This observance has been truly voluntary in individual cases, too, though the agencies of the industry have of course utilized their influence toward achieving it.

Now, after several months of individually voluntary adherence to these, the most important elements of the code principles, the opportunity to consolidate

Announcement of Proposed Industry-Wide Cotton-Textile Pledge

December 18, 1935.

TWELVE hundred cotton mills throughout the country will be asked, before January 1, to pledge the maintenance of basic provisions of the industry's former code, it was announced last night by Dr. Claudius T. Murchison, president of the Cotton-Textile Institute.

Under the simple pledge as now proposed, mills will be asked to agree with the Institute and, "in consideration of similar pledges by other mills", not to exceed the two 40-hour shifts a week maximum for productive machinery, nor the 40-hour maximum work week for employees, to pay, at least, code minimum wages; and to employ no child labor—standards which, it was emphasized, have been maintained voluntarily by more than 90 per cent of the active spindles in the industry since the collapse of NRA.

Already approved in principle by every important association in the industry, including the American Cotton Manufacturers Association in the south, the National Association of Cotton Manufacturers in New England, the Southern Combed Yarn Spinners Association, state associations and group organizations, the proposed agreement, according to Dr. Murchison, is another step toward realization of the industry's program:—

". . . To press confidently forward with voluntary cooperation in establishing and maintaining sound competitive conditions and practices; in maintaining and, if possible, improving its standards of employment and compensation of its employees; in seeking to do business on a basis of fair return on its investment which will enable it to maintain those standards, preserve its credit and render improving service to the public."

"In the months since the invalidation of its code, the industry", said Dr. Murchison, "has demonstrated its capacity for self government. Here and there, units, usually small and poorly financed, have broken away but the preponderant majority has continued, in the face of many discouragements and temptations, to hold the lines.

"It is that record of achievement and the enthusiastic and unanimous approval of every group consulted thus far which justifies submission of a definite agreement to the industry.

"Because its acceptance by mills will substitute individual pledges for what has been voluntary unpledged maintenance of standards, the program should be a source of renewed confidence not only for the mills themselves and their customers but for their workers and the general public.

"Acceptance of the agreement by the mills will consolidate gains already made and will assure further substantial progress toward stabilization of the industry and its markets by preventing those periodical orgies of excessive production marked by demoralized markets as well as by sharp peaks and dips of employment so disastrous to workers and the communities dependent on them."

this capacity for self-government is offered, through the Institute. It should be emphasized that the movement is an entirely voluntary one, with no element of the government interference or supervision, which, almost everyone agrees, produced the chaos and insurmountable problems of the former "partnership with government". Furthermore, it pertains only to those factors mentioned, and the other complicated and confusing sections of the code which did not and could not function feasibly and fairly, with or without government "partnership", are not embraced.

Dr. Murchison of the Institute in his statement has presented the case succinctly and well. There are two chief objectives to be gained, he has pointed out, through the universal adoption of the new pledge. At several of the meetings with mill men held preliminary to the drafting of the new movement, he pointed out that the adoption of such a policy would be the best protection against radical legislation in state legislatures and the Congress; that many in public life, especially those committed politically to such efforts as the late NRA, are but awaiting violations of the recognized advances of the codes as the excuse to promulgate similar legislation. And, politically, the best evidence for the "need" of such control is the failure of industry to demonstrate its ability to govern itself.

An equally important objective of the new movement is to correct a demoralized market position resulting from over-production. It has long been recognized that 80 hours a week operation for all of the industry's equipment is not too little to supply the demand, that, in fact, a single shift of 48 or 50 hours per week would come nearer to the true consumption, and stabilization of production will work toward substantial progress "by preventing those periodical orgies of excessive production marked by demoralized markets as well as by sharp peaks and dips of employment so disastrous to workers and the communities dependent on them."

The obvious comment as to the suggestion of one-shift is that the unemployment resulting from the elimination of one shift of workers would offset the production advantages thus secured.

By the time these comments appear, announcement as to the success of the program will probably have been made. At this writing, however, the movement appears to be gaining momentum rapidly from the time of the statement of Dr. Murchison. Previous to its announcement, practically every important organization in the industry had been contacted, and all approved the principles involved in the program.

* * *

The proposed agreement as described has been submitted to the members of the executive committee of The Cotton-Textile Institute, to the board of government of the American Cotton Manufacturers Association, and to the board of directors of the National Association of Cotton Manufacturers. At press time for this issue, the sponsors were receiving approvals and suggestions for consideration to be taken up at a meeting of the board of directors of the Institute beginning on January 8.

AAA and Processing Taxes Killed by Supreme Court

January 6, 1936

THE Supreme Court of the United States today declared the AAA (Agricultural Adjustment Act) unconstitutional, in a decision rendered in the appeal of the Hoosac Mills to prevent the collection of cotton processing taxes imposed under this Act.

The nine justices voted 6 to 3 on the decision, with the majority ruling that Congress had exceeded the limitations of the Government's power in instituting the crop control program and in levying the processing taxes collected to finance the benefits paid to farmers under the Act.

Thus, AAA, one of the two main pillars in the program of the New Deal, was unequivocally relegated to the limbo of illegality, going the same way to extinction that NRA, the other bulwark of the Administration's program, traveled last spring. Both went down in defeat when tested in the highest court of the land, following wholesale repudiation in the lower courts.

At this writing, neither time nor available space permits a detailed analysis or discussion of the potentialities of the sweeping decision. It is certain that payment and collection of all processing taxes levied under the Act are eliminated—which in the case of the cotton mills is a tremendous relief from the oppressive conditions that have prevailed. It is understood also that, as a result of the decision, the entire staff of the AAA is now non-operative.

It is to be further assumed, from the nature of the decision, that a similar fate awaits the Bankhead cotton control plan, and other like activities of the AAA, and there is some feeling that the pronouncement of the court in this case bodes defeat for some of the other major projects of the Administration. The court took the stand that such legislation as the AAA is not justified under the "general welfare" clause of the Constitution.

The decision also is interpreted to nullify the amendments made last year in the hope of strengthening the Act to preclude its voidance as unconstitutional.

The decision brings many problems of administration and correction in the cotton-textile industry, which must subsequently be solved. These cannot be discussed in detail at this time, but we can record the killing of AAA and the unqualified feeling of relief and confidence pervading this industry as a result.

The Candlewick Bedspread Industry of North Georgia

By Henry W. Nevin

AN interesting sidelight on an industry which has had an amazing growth and has become an important consumer of cotton textiles . . . . . .

A LUSTY $2,000,000 fireside industry, centered in and around Dalton, Ga., employing 7,500 to 10,000 home workers in the manufacture of hand-made candlewick tufted bedspreads, is fast becoming a potent factor in the consumption of cotton cloth and thread produced by southern textile mills.

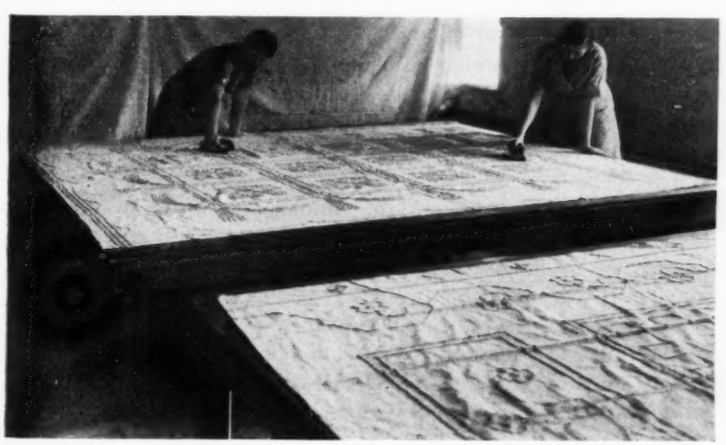
Originally an art of early colonial times, the sale of candlewick spreads was first put on a commercial scale about 15 years ago by several Dalton women who began having the spreads made for re-sale to gift shops, department stores and hotels. The industry has enjoyed a steady growth until, today, there are 30 recognized manufacturers and distributors who, it is estimated, shipped more than 1,000,000 bedspreads during 1935 to all sections of the United States and to many foreign countries.

It was the biggest year in the history of the industry. In 1933 the total volume of sales was $1,494,000; in 1934 the volume had increased to $1,716,000, while 1935 sales went well over $2,000,000.

These spreads are made entirely of cotton, containing an average of two pounds of sheeting and one-half pound of thread. The output in 1935 consumed 2,500,000 pounds of raw cotton, or 5,000 bales. The cloth and thread are purchased from southern mills, some of which make a specialty of the 99-inch width sheeting which the industry requires.

Manufacturers furnish the material to the spread workers, stamping the design on the cloth and supplying the necessary thread for the various patterns. It is estimated that 90 per cent of the home work on spreads is done by wives and daughters of tenant farmers, including cripples and old people in their dotage, who are glad to have the needlework as a means of livelihood supplementing the earnings of other members of the family, and, in a great many cases, keeping them off relief rolls and out of charity. The workers receive from 16 cents to $1 per spread for the tufting, depending upon the complicated nature of the design, the total payroll of the industry amounting to from $600,000 to $700,000 annually.

The designs are stamped on the goods and the cloth and thread supplied to the home workers . . . . . .



The large majority of the needle work on the candlewick bedspreads made in North Georgia is done in the homes . . . . . .

Tourists traveling through North Georgia may see many places of scenic beauty and historical interest, but the one thing that puzzles them and piques their curiosity most is the sight of myriads of these spreads hung on lines and flapping in the breeze for 60 miles along the Dixie highway from Ringgold, Ga., on the North, to Acworth, on the South.

Their reaction to the first string of spreads is usually a surprised "What tha—" and a growing wonderment how families in the south could be so large that 50 bedspreads would have to be hanging on the clothes line at one time. After passing two or three lines loaded with spreads, the tourist usually stops his car to find out what it's all about—and a sale is made.

However, only a small proportion of the total volume of sales is through this channel—in fact, less than ten per cent. The big volume is through large department stores and to hotel chains.

Of the 30 recognized candlewick bedspread manufacturers and distributors with plants, nine are managed partly or entirely by women. Twenty-one are located at Dalton, three at Calhoun, one at Chatsworth, one at Hill City, one at Rome, in North Georgia; one at Sumter, S. C., one at Scottsboro, Ala., and one at Tullahoma, Tenn. Several of the Dalton firms have branches in the towns named, while two Dalton companies have established plants in Canada.

Loom Stoppage Tests— Why and How to Make Them

By P. B. Parks, Jr., Superintendent
Mill No. 5, Erwin Cotton Mills Company

HERE is a straight-forward discussion by a mill man, telling how he makes his loom stoppage tests, why he does it, and how he uses the information to good advantage. Those who have never used this barometer of operating conditions will learn much from this article; those making such tests will get some good ideas . . . .

PERHAPS all of us are not aware of what the Governor of North Carolina said to the Governor of South Carolina, but it is a dead cinch that all mill men know what the superintendent of one mill says to the superintendent of another mill when they get together for as long as a minute or two.

Regardless of how the conversation starts off, the discussion sooner or later gets around to the age-old topic of production. After the formalities of inquiring about the well-being of the respective families, the conversation usually falls into a pattern which will be instantly recognized by anyone familiar with the habits of the genus *Superintendent.*

First Superintendent: "How is your production these days?"

Second Superintendent: "Well, I'll tell you, Bill, it's not so good—and it's not so bad, either. I'm running around 94 per cent most of the time."

First Superintendent: "Huh! I call that good—I don't get but 91 per cent. How do your figure your percentage? You must be getting a running start before whistle time or through dinner hour."

And they're off! The old problem gets attacked from every angle—and who can blame them?

How to Find the "Why"

Production is one of the main keys to cost per pound. Production plus quality is about three-fourths of the battle—and, strange as it seems, the two are closely related. When production is good, seconds are usually low. This is true because most seconds are the result of some defect in either the warp or filling preparation which not only makes a bad place in the cloth, but requires the attention of the weaver in repairing the end breakage and re-starting the loom. Thus, bad yarn (particularly in the warp) acts as a two-edged sword which hacks away at both the quality and the production—not to mention the sanity of the poor superintendent.

We all lay a great deal of stress on production, and figure out each week just how good or how bad our percentage has been. The percentage figure alone will tell us just how well or how badly our work is running, but unfortunately it does not tell us *why* it is running that way.

There are various methods used to determine the causes of poor production, but I know of no more valuable a method than the use of the Loom Stoppage Test.

As Mr. W. H. Miley, Jr., so ably pointed out at the recent meeting of the Eastern Carolina Division of the Southern Textile Association (*), the loom stoppage test not only puts the finger on troubles causing low weaving production, but also points to the remedies required. This can be more readily understood by a discussion of the mechanics of the loom stoppage test, and I shall outline here our procedure, offering it not necessarily as *the* way, but as *a* way which has proven satisfactory and helpful to us.

The Way We Make Loom Stoppage Tests

A group of looms operated by one weaver is selected for the test. A person, about whom more will be said later, is given a blank form listing the causes for loom stoppage horizontally across the top of the chart, each item heading a vertical column. (See illustration). Listed vertically are the various numbers identifying the looms being tested, each number having a horizontal ruling which intersects each of the Cause columns already mentioned. This person accompanies the weaver to each loom that stops and analyzes as nearly as possible what caused the loom to stop and tabulates the stop by making a straight mark opposite the loom number involved and under the appropriate Cause column. This procedure is repeated as each loom is re-started by the weaver.

At the end of a definite length of time (the longer the time, the more accurate the results) the stops are added vertically. The total of the vertical additions is the total number of loom stops for the duration of the test. This figure divided by the loom hours over which the test ran gives the stops per loom per hour.

The loom hour is a very convenient expression of both the time interval and the number of looms involved. Running 30 looms for 2 hours, 15 looms for 4 hours, or 60 looms for 1 hour, would amount to 60 loom hours of operation in either of the three cases.

Naturally, since the number of looms covered by a test is limited to the number of looms operated by one weaver, the duration of the test is the only variable that is unlimited. I would suggest that no loom stop-

(*) Reported on page 50 of the December 1935 issue of COTTON.

page test cover less than 256 hours, and would recommend that it cover an even larger number of loom hours for the sake of accuracy. Furthermore, I think it advisable to let the test extend at least a full day in order to get a picture of the loom stops which will be truly representative of the weave room operation under all of the conditions incident to the complete cycle of a day.

The stops per loom per hour are very important because of their bearing on production and on labor load or the number of looms a weaver can operate efficiently. However, the most important information

LOOM STOPPAGE TEST Oct. 23, 1935.

LOOM Nº	KINKS IN WARP	SLIP KNOTS	WINDER & WARPER KNOTS	BEAMER & SLASHER KNOTS	SPIN. GOUTS	BEAMING & SLASHING GOUTS	LINT ON YARN	WASTE THREAD IN WARP	TWISTED ENDS	UNEVEN YARN	LOOSE ENDS	EXTRA ENDS	SOFT SIZE	HARD SIZE	MISDRAW	MAT-UP	DOUBLE END	CUT SELVAGE	BAD HARNESS	LOOM REPAIR	CLOTH DOFFING	WARP OUT	LOOM CLEANING	UNKNOWN CAUSE	MISCELLANEOUS INFORMATION
2513	/		////		/															///	/		///		STYLE
2514	/	/	/						/												//		//	/	
2515			////	/							///	//									//		//		CONSTRUCTION
2516			/													/				/	/		//		WARP Nº
2517		//	//							/	//					/			/	/	/		//	/	FILLING Nº
2518			//	/	/						/	/						/		/	/		//	/	Nº LOOMS 32
2519			/							/										/	/		//	/	HRS. RUN 16
2520		//	////															//		//	//		///		LOOM HRS. 512
2521			//						//							/				//	///		///		LOOM R.P.M.
2522		/	/		/			/													/		///		TEST RECORDER
2523			//		/						//	/								/	/		///		WEAVER
2524			/	/					/	/	///	/						//		///	/		///	//	
2525	/		////		/				/	/								/		///	//		///	/	REMARKS
2526			/						//		///	///				//		/	/	///	/		///		Machine
2527		/	////	/	/															///	/		//	//	for route.
2528			///		/											/					/		//		Oct.
2593			///		/																/		///		Loom Stoppage 84°
2594		//	//	/	/					/		/				//		/	/	/	/		///	/	Oct. 23 1935
2595			////		/			/								//		/	/	//	/		//		Weather 66°
2596			///							/	///	///									/		///		Rel. Humidity 36
2597			//	/	/			/			/	/								/	/		///		
2598	/	//	//		/						/	/								/	//		/		Loom Humidity
2599	/	///	/					/												/	/		//		Operative 88°
2600		//												/						//	/		/		Weather 79°
2601		//		//							/	/								/	/		///	/	Rel. Humidity 68
2602		//						/	/		/	/								/	/		//		
2603		/									/	/									/		//		TOTAL STOPS 3769
2604		////	/						/												/		///		LOOM HRS. 512
2605		//														/				//	/		///		STOPS PER LOOM
2606		////	/							/	/	/								///	//		//	//	PER HR. FROM ALL
2607	/	//						/			//	//								/	/		//		ALL CAUSES. 721
2608	//	//			//						/									/	/		//		
TOTAL	5	12	82	9	17	0	0	5	9	6	26	20	0	/	0	8	0	8	/	38	40	0	71	13	371

A suggested form which may be used as the basis of a loom stoppage test report blank

contained on the finished test chart is the addition of each of the Cause columns. Here is where we read just what and where our trouble is.

How We Use the Information

Let's suppose that our completed test chart shows us that our looms stopped an unreasonable number of times because of "Kinked Warp Yarn". This would give us a very effective clue as to our trouble. In my own particular experience, this very item was large and the answer lay in having the winder hands to give the cone a whirl by hand to take up the slack in the yarn caused by tying up a new end, before engaging the cone with the driving roll. It was a simple remedy—but it did the work. This is just one evidence of the possible uses of the Loom Stoppage Test.

There are as many different opinions as to what information is pertinent and what Cause columns should be carried on the report, as there are men involved. This is natural because no two weaving jobs are exactly alike. Every overseer of weaving or superintendent of a weaving mill who wishes to compile a chart form should be guided by his own requirements.

Personally, I want to know everything there is to be found out and, therefore, I include all stops of whatever nature in my test and as many of the surrounding circumstances as I think are likely to vary from one day to another. For instance, I would want to know in what kind of weather the test was run. In looking over my records a year or so from now, I won't be able to remember whether weather conditions were favorable or unfavorable for a given test unless I have recorded that information.

In order not to leave out any factor which might prove important, I note not only the general weather conditions such as "cloudy, warm, etc.", but even such details as the average temperature and average wet bulb humidity from which I can derive the average relative humidity.

So much for the general information—the remainder of the information outside of the chart itself is specific enough. The duration of the test and the number of looms tested, the construction of the cloth being woven on the looms, the speed of the looms in question, the name of the weaver and of the test recorder, are all essential.

Listing the Causes

Now as to the headings of the Cause columns—several tests ordinarily would have to be run before one could name enough columns to cover all of the causes for stoppage that are likely to occur. Even after being satisfied that the proper listing of causes has been made, it is very wise to head one column "Unknown". If this is not done, the recorder is tempted to put a stop under *some* head when really he is unable to analyze the stoppage. The "Unknown" column gives him a proper place for these stops and does not have the disadvantage of affecting the reliability of the other columns.

On my own chart I list such stops as "Taking Off Cloth" and "Cleaning Looms". I do this, even though weavers in my plant do not take off their own cloth, because, by having the stops complete, I have a flexible record which I can compare with other years when weavers *did* remove their own cloth, or with other mills where this practice prevails. Also, I can leave out of my final figure any stops which I do not consider pertinent to my test at the time it is made, but which might be important information at some later date when I may be considering some change in my job lay-out.

The Right Man for the Testing Job

Finding the person with the proper qualifications to make the test is a major problem. This individual must have sufficient practical knowledge of the various departments of the mill to recognize bad work when he sees it and to know where it comes from. It can hardly be expected that more than a very limited number of employees in any one mill will have such a knowledge. It is quite possible that your particular plant hasn't anyone capable of making a loom stoppage test except yourself. If you find this to be the case—by all means, make it yourself. Regardless of who makes the test, he should make it under the direct supervision of the superintendent because the results of the test involve all departments of the mill. This will avoid any suspicion of unfairness on the part of the overseers of the departments other than weaving.

Next to a knowledge of the various processes, the test recorder should have good judgment and be absolutely honest. Lastly, he must have sufficient education to enable him to tabulate each stop accurately after he has made the correct analysis. Conscientiousness is worth more than knowledge if the best use is not made of the knowledge. An inaccurately tabulated loom stoppage test is worse than no test because misinformation is harder to combat than ignorance.

When anyone with all of the foregoing attributes is discovered, a man of superintendent calibre has been located. Young, ambitious college boys with sufficient experience in all processes leading up to and including weaving make the best bets for making the loom stoppage tests. Most mills do not have a large enough personnel from which to draw to make a perfect selection to start with, and therefore have to be content with developing such a man through careful training.

Once our man has been selected for making the test, and our blank form is in readiness for his use, the next question is, "Where shall we make the test?"

Where to Make the Test

The answer to this question depends upon what the object of the test is. If we are making a test on some certain style to get cost figures for that style, the answer is obvious. If, however, we are making the test to compare the running quality of our work as of today with its condition three months or a year ago, then it would be best to select looms which are running on some standard style that is nearly always being produced.

For the purpose of comparison with other periods,

a standard style is essential because a little change in construction may make a big difference in loom stops. The same warp yarn in one piece of cloth may not run nearly as well as in a different construction. In order that conditions be as nearly identical as possible, then, it is necessary to use the same style each time in order to compare loom stoppage tests made at different times.

The most important use of the loom stoppage test is, of course, as a guide to point out faults in the processes preceding weaving. It is always well to re-check the stoppage after making what appears to be the correction of the difficulty.

The completed loom stoppage test chart is too bulky for convenient filing. For this reason it is best to compile the totals on a smaller piece of paper suitable for filing along with all the facts pertaining to the test. Remember that any information worth getting is worth keeping.

As an example of how valuable a loom stoppage test can be, I offer my experience with them.

On one occasion, after having a test made, I noted that the item "Waste Thread in Warp" was abnormally large. This called for explanation, and after analyzing samples of the waste thread kept by the weavers over a period of several days, I came to the conclusion that the waste thread got into the work at the beamers' frame. This conclusion was the result of putting 2 and 2 together.

My particular work requires chain-dyed warp, therefore, when I noted that the pieces of waste thread taken out of the warps by the weavers had a white core at each end, I knew that the waste end had been broken after the dyeing process. That one bit of information eliminated winding and warping from further consideration.

The waste thread was sized, but was not long enough to be the type of waste usually made at a slasher. This eliminated the slashing process. The waste thread had been seen frequently coming up in the warp—in fact it was stuck to a warp end that was unbroken. This eliminated any possibility of the troublesome waste having gotten on the warp in the weave room.

By this process of elimination, the beaming frame was automatically elected as the culprit. A trip to the beaming room soon provided the answer—the beamer tenders were making a mistake which sounds small but which was proving disastrous in the form of drawbacks, skipping and break-outs. The mistake consisted of their dropping the short ends broken off in repairing a break, instead of placing the broken end in a receptacle from which they could not fall. The waste thread would float to the floor when dropped by the beamer tender unless—and here was the trouble—it either fell on the already beamed warp or was drawn into the work by the suction created by the revolving beam.

Of course the waste thread was not fastened to the beam, but while passing through the slashing process, it was made fast to some end from which even the "busting rods" could not separate it.

Once this condition was corrected, very little "Waste Thread in Warp" had to be marked up in succeeding tests.

Just this last year we noticed that our weave room production was a little off and employed our old standby, the loom stoppage test, to find out the "why". The resulting figures showed us that the item "Uneven Warp Yarn" was about twelve times its normal figure. We immediately got busy with a concentrated study of the spinning to determine the reason for the increase. We found that a change in the material used to cover our spinning top rollers was responsible. At the time we had made the change, we had noted no ill effects, but time brought out faults in the new covering which occurred so gradually that we had not detected them.

Perhaps you have troubles in your plant which you don't suspect. If you want to go along in an unperturbed mental state, all oblivious to impending doom, and carefree in your blissful ignorance of conditions, take my advice, and *don't* make a loom stoppage test.

Otherwise—!

National Cotton Week, June 1 to 6, 1936

National Cotton Week, which for the past five years has signalized the opening of the summer cotton selling season, will be observed this year during the week of June 1 to June 6, the Cotton-Textile Institute announces.

Three weeks later than in recent years, the week of June 1-6 was designated by the Institute's executive committee in response to the suggestions of important participants among the wholesale and retail trades. It is anticipated that warmer weather and other factors will be more favorable for a co-ordinated promotion of the proportions which National Cotton Week has reached.

First sponsored by the Institute in 1931, National Cotton Week last spring, the most successful of the series, enlisted the active cooperation of nearly 40,000 merchants throughout the country. Because of the importance of cotton goods, numbering hundreds of items, in the stocks of department and dry goods stores, National Cotton Week has had an unusual appeal and has proved itself a practicable and effective agency for massing the country's selling forces behind a concentrated promotion of cotton goods.

As in other years, the Institute will supply participating retailers and others with merchandising suggestions, ideas and other appropriate material to enable them to take full advantage of the selling possibilities of the Week.

Mathies Succeeds Leaver at Thermoid Rubber Co.

The Thermoid Rubber Co., Trenton, N. J., have announced the appointment of Fred Matheis as assistant vice president in charge of the office of the mechanical rubber goods division. Mr. Mathies, who has for many years been in active charge of the department routine, succeeds Lloyd Leaver, who has been vice-president in charge of sales of the division. S. H. Lyons, dean of the mechanical rubber goods sales division, has been appointed eastern manager of this department. It is also announced that additional equipment and machinery to take care of increased business and the manufacture of new products has been installed.

TEXTILE TESTING LABORATORIES

By Robert H. Brown*

AN authoritative discussion that will interest those actively engaged in and concerned with textile testing—covering some of the more recent and advanced applications of more accurate control of conditions, and recently established and approved principles and methods . . . . .

EVERY textile manufacturer does testing of some kind—weight uniformity, breaking strength and what not. But it has become increasingly apparent, to many directly responsible for tests, that the most accurate and sensitive instruments are not to be relied upon unless they are free from fluctuations of temperature, air currents and humidity.

The ideal testing laboratory aids in keeping sensitive instruments truthful; and in keeping sensitive material from being a party to an untruth. And we assume that those who are interested in tests are seeking what tests ought to disclose—the truth.

Selection of Equipment: Laboratory humidifying and air conditioning systems range from simple humidifiers to complete apparatus for close control of both temperature and humidity under varying outdoor conditions. Automatic control methods likewise range from simple hygroscopic regulators to combined graduated temperature regulators and psychrostats of the most improved design.

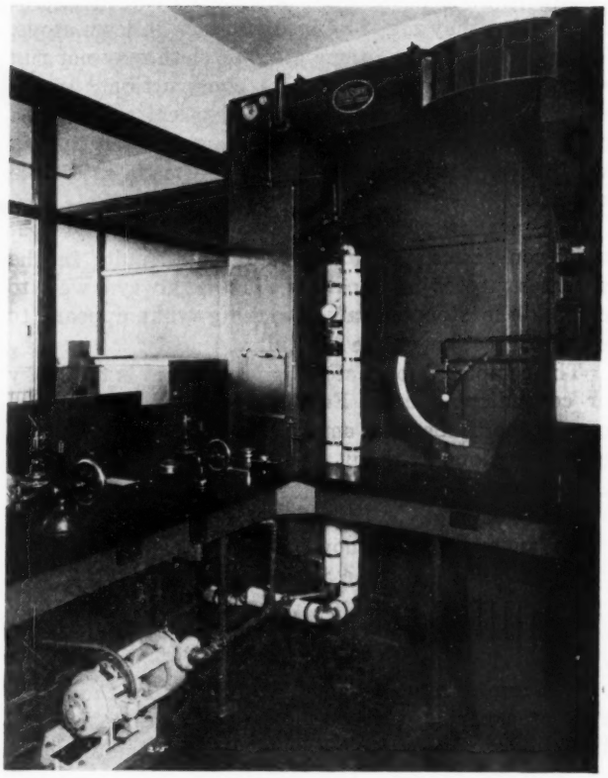
With such a wide assortment of apparatus available, laboratory installations need be limited only by the particular physical requirements; the relative advantages and economies balanced against investment. The ideal system consists of a washer type unit air conditioner with automatic regulation and accessories to furnish complete air conditioning, including:

(1) humidifying or dehumidifying; (2) heating or cooling (independent of humidification); (3) ventilating in accordance with economy and health requirements; (4) air circulating; and (5) air cleansing.

Calculations: From the published records of the U. S. Weather Bureau, may be ascertained the normal minimum outdoor temperature in winter, the normal maximum outdoor temperature and normal maximum outdoor wet bulb temperature in summer, for a given locality. From these winter and summer weather conditions, capacities of the air conditioning system are based.

With these, together with a study of building construction (and in some cases recommendations such as double glazing, insulation, etc.) dimensions, exposure, occupancy, heat input from lights, ovens, power and sun—calculations of capacity are made and design of apparatus determined.

(*) Research engineer, Parks-Cramer Company. Mr. Brown is a member of the American Society for Testing Materials, Committee D-13, and Chairman of Sub-Committee B-1, Sec. III on Humidity. This article was prepared for *Parks' Parables* in the January issue of which it will appear, and is presented here through courtesy of Parks-Cramer Company, the publishers of that publication.—THE EDITOR.



An arrangement for laboratory air conditioning. In this case most of the conditioning apparatus is installed in the testing room . . . . . .

Importance of Indoor Temperature: In collaboration with numerous laboratory experts, including Government and university technologists, the effect of temperature fluctuations in textile laboratories has been carefully studied. It is their opinion that close temperature control is of equal importance with control of relative humidity in maintaining a fixed regain condition. This is contrary to opinion formerly held and still advocated by some.

Briefly, the reason is: Although a change in indoor temperature level as between summer and winter of as much as 10 degrees F. is equivalent to a change in relative humidity of only about 1 per cent, sudden changes in temperature such as may occur from hour to hour (without close temperature control) are fully equal in their effects on "regain" to like numerical changes in relative humidity. This involves complex thermodynamics, heat and vapor differentials, hygroscopic lag and hysteresis, which we shall not dwell on here.

Based on studies and experience, we conclude that although a different temperature level may be maintained in a laboratory, say in different seasons, without changing appreciably the accuracy of testing data, during any particular test (especially during the time of exposure of test samples, prior to testing) close temperature control is just as essential as close humidity control.

Thus, in order to simplify automatic controls and to avoid any possible controversy, we recommend maintaining a fixed "standard atmosphere" condition of 70 degrees F. temperature and 65 per cent relative humidity at all times.

Tolerance in Temperature: Laboratory specifications often limit the tolerance in dry bulb temperature at 2 degrees F. above or below the point of adjustment, representing the extreme range of tem-

perature resulting from "on" and "off" actuations of the conditioning apparatus. Average conditions should not vary more than 1 degree F. plus or minus from the point of setting.

While there would be some saving in refrigeration in summer and heating in winter, by adjusting temperature level between say 70 degrees F. and 80 degrees F. for winter and summer operation respectively (and it may be desirable to adopt this practice), this is not recommended by the best authorities.

Importance of Indoor Humidity: The effect of relative humidity of the air on regain of textile materials is common knowledge. Even slight changes in humidity produce immediate and measurable changes in regain of hygroscopic material exposed to it. For this reason textile laboratories have for years recognized the importance of humidity control. Changes in regain affect weight, strength, elasticity, elongation under load, appearance, wearing qualities and other physical characteristics.

Tolerance in Humidity: Since any change in relative humidity produces a noticeable change in regain and physical characteristics of textiles, humidity in testing laboratories should always be controlled closely. Apparatus which controls relative humidity within 5 per cent is better than that which controls within 10 per cent. But even 5 per cent is too wide a variation for good testing, yet many humidifying and automatic control systems cannot be depended upon for closer control than that, especially after being in service for a few weeks.

For a high grade technical laboratory, the permissible tolerance should be not more than 2 per cent in humidity above or below the point of setting with an average tolerance (mean between the on and off actuations) not exceeding 1 per cent plus or minus, at any particular location.

The foregoing temperature and humidity tolerances are in accordance with standards set by Committee D-13 of Textile Materials of the American Society for Testing Materials.

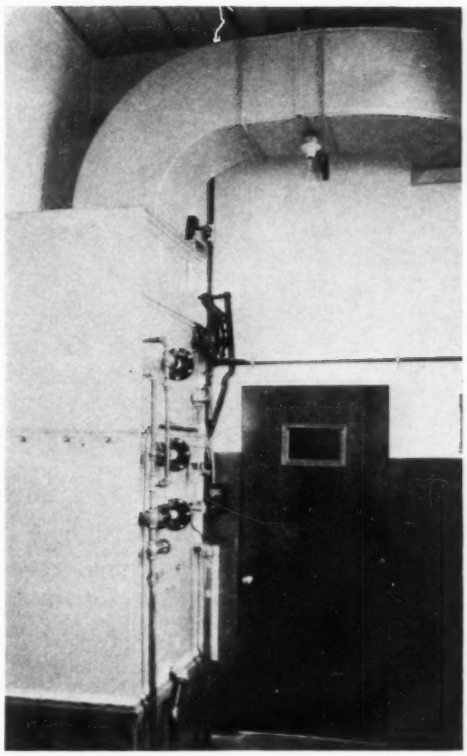
Equivalent Regain Conditions: As stated, variations in temperature are permissible *but not* during test periods and provided also that the slight equivalent correction in relative humidity is made to represent a fixed regain condition. The following table of equivalents is in accordance with Hartshorne's Regain Law for Cotton:

Dry Bulb Temperature (Degrees F.)	Relative Humidity (Per Cent)
70	65
75	65½
80	66

Tests made at any of these equivalent temperature and humidity levels will prove comparable, provided tolerances in variations during the test period are maintained within the limits specified previously. There is a distinction between conditions which are equivalent—and tolerances. The range in equivalent conditions is limited by comfort, economy and convenience. Permissible tolerances are dependent upon permissible variations in physical conditions of the material.

Importance of Air Movement: The importance of air movement in conditioning textile materials in the testing laboratory is sometimes overlooked. Whereas in still air, 4 to 6 hours or more may be needed for thorough conditioning of test samples in a standard atmosphere, 1 to 2 hours is ample time where samples are exposed to moving air.

A testing laboratory air conditioning system should provide for positive and uniform circulation of air throughout the test room at all times. This adds greatly to the speed and accuracy of testing.



A textile testing laboratory air conditioner of improved type, for controlling both temperature and humidity in the adjoining room according to precise standards . .

Comfort and Health: Atmospheric conditions which would be standard for a testing laboratory (65 per cent humidity at 70 degrees F. temperature) are well within the normal range of comfort as established by the American Society of Heating and Ventilating Engineers.

Features of any proposed system—aside from temperature and humidity which are desirable from the comfort and health standpoint—should include air washing, purifying and circulating. In all plants where these features are included, the working conditions have been sufficiently improved to result conspicuously in better health and contentment of the workers, better regularity in attendance, improved energy and steady attention to work, and better mental effort and accuracy.

Perfect Distribution and Uniformity: By delivering only vapor and by proper location of air diffusing, re-circulation and exhaust outlets, an ideal air conditioning system provides for more rapid and uniform distribution of conditioned air to all parts of the room than is otherwise possible.

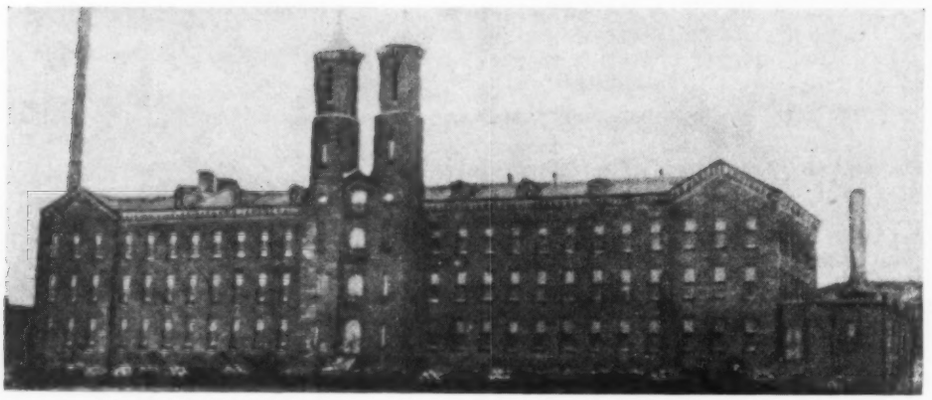
Ventilation: Ample ventilation to suit the needs of health and comfort is obtainable with such a system. Windows and all other ordinary means of ventilation are kept closed. Weather and wind conditions may be entirely ignored, as the automatic control system will take care of any outdoor variations and will maintain constant indoor conditions regardless of weather.

Provision should be made for restricting ventilation to the minimum in winter weather to conserve heat; to provide additional ventilation when evaporative cooling is utilized; and finally to restrict ventilation to the minimum amount to conserve refrigeration during hot summer weather.

Clean Air: All air passing through such an air

(Continued on page 54)

An Old Cotton Mill



A front view of the Indiana Cotton Mills building, erected in 1849

By Alberta Bell McLeod

CONSTRUCTED nearly a century ago of handcut stone with woodwork of black walnut and poplar, the Indiana Cotton Mills, the home of "Hoosier" sheeting, at Cannelton, Indiana, has retained the charm of tradition and kept up with the march of industry with a steady increase in production and equipment, according to Superintendent Arthur W. Roper, fourth in the line of superintendents through the century, his three predecessors having died on the job, as he hopes to do.

Modern in every detail when it was erected in 1849, the plant had Zachary Taylor as one of its officials and was equipped with 250 tons of machinery from England. The Cannelton mill today has increased from an original 150 looms and 7,000 spindles to 450 looms and 18,000 spindles. Cannelton sheeting was formerly 2.85-yard but is today 4.00-yard and has changed its trade name to Hoosier sheeting. The present capacity of the plant is 200,000 pounds a week.

From Candlelight to Electricity

Four different lighting processes have been used in the mill through the years: First, candles; next, coal oil; then, manufactured gas; and finally, electricity.

A time clock, a night watchman and a hose and fire company were present in the factory at its inception in 1849, all the last word in the textile industry of nearly a century ago. A hand-drawn fire engine, equipped with suction pipe and leather buckets, and a brass speaking trumpet, bearing the date 1852 and the inscription, "Won by Number I Fire Company", are treasured museum pieces of the establishment. The Cannelton employees are keeping up the reputation of their predecessors since, by the side of the quaint old trumpet, is a silver loving cup, won by the basketball team of the mill in the city tournament of 1934-1935.

The architecture of the old building is picturesque and sturdy as only huge, handcut stone and solid black walnut and poplar could make it. Spiring above either side of the entrance to the four-story building and the flat, one-story weaving room addition, two square towers, topped with minarets and lighted by narrow slits of windows with oval tops, give the plant the appearance of a castle on the Rhine. Wider, oval top windows, with ledges under them, distinguish the two wings of the building from its modern counterparts. Inside, poplar beams, 67 feet long and 16x14 inches in girth, show the solid structure of the building. Window sashes and frames as well as all column posts and stairs are constructed of black walnut. The $200,000 expended by the original builders was well invested because there is no sign of deterioration inside or out.

The history of the organization of the company begins in 1847, when this company and eleven others applied for charters for mills in Cannelton. But, singularly, only this one succeeded. Hamilton Smith and Zachary Taylor, supported by 40 stockholders, built the mill on a site 377 feet by 900 feet, donated by the Candle Coal Company, the company from which the town gained its name—Cannelton, a slurred form of Candletown, as lip-lazily pronounced by the citizenry. The building was completed in 1849, as the date on its towers testifies, and by 1851 the machinery from England had been installed and the first cloth woven from cotton raised in the river bottoms around Memphis, Tenn., still the source of supply of raw material for the mill.

Superintendent Arthur W. Roper himself has a personal history in the textile business almost as interesting and distinctive as that of his company. Although he has been in his present position only five years, he has served 35 years in the textile industry since he began as a mill sweeper in the South Side Mill, Lincolnton, N. C. His predecessors as superintendent of the Cannelton organization were: a Mr. Wilburn, George Smith, and Dean Sutcliff. Mr. Roper is looking forward to the celebration of the centennial of the business in 1949. He hopes to serve the company until he, too, "dies on the job".

The overseers working with him in the mill now are: Will Reed, carding; Robert Williams, spinning; and W. H. Gibbs, weaving.

Chemists' and Colorists' Meeting at Chattanooga Reported First-Hand

THE SOUTH played host to the 15th annual convention of the American Association of Textile Chemists and Colorists, held in Chattanooga, Tenn., under the auspices of the South Central Section, on December 6 and 7. A full program of valuable discussions combined with excellent entertainment provided by the local committee headed by William J. Kelly, Jr., made the occasion a most helpful and interesting one.

Robert E. Rose, director of research for E. I. duPont de Nemours & Co., Wilmington, Del., presided as president of the Association, and was assisted by Carl Z. Draves, chairman of the technical program for the meeting.

William H. Cady, chief chemist of U. S. Finishing Company, Providence, R. I., was elected president of the organization succeeding Dr. Rose. Mr. Cady has been vice-president, and Elmer C. Bertolet, of the Philadelphia Textile School, was elected to succeed him in that capacity. Arthur R. Thompson, Jr., of the Ciba Company, Charlotte, was re-elected vice-president. Harold Chapin, of the Lowell Textile Institute, was re-elected secretary, and William Moorehouse, sales manager of National Aniline & Chemical Co., was re-named treasurer. H. M. Chase, of Riverside & Dan River Cotton Mills, Danville, Va., and Arthur Hirst, general manager, Pacific Mills, Lawrence, Mass., were made councilors-at-large.

The technical programs of this organization always cover a wide range of subjects of pertinent interest, and only a digest of the proceedings is permitted. However, in order to present a brief resume of what was said and done, we turned to a regular attendant at the sessions, Andrew J. Kelly, whose comments on the high-lights of the technical sessions we are pleased to present below:

By Andrew J. Kelly

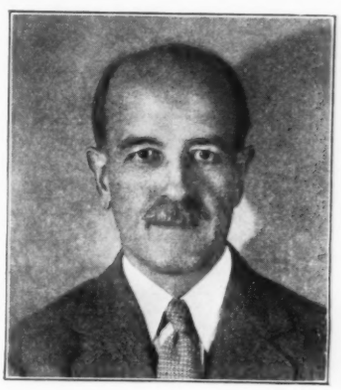
Burkart-Schier Chemical Co.

THAT chemists, like small boys, want to be shown things was well-evidenced at the recent annual meeting of the American Association of Textile Chemists and Colorists in Chattanooga. And that this fact is well-recognized was also evident, for whenever possible most of the speakers gave visual as well as verbal verification of their points.

Effects of Ultra-Violet Radiation

The opening session of the technical program got off to an excellent start with a fascinating demonstration of some of the remarkable effects of ultra-violet radiation[1], accompanied by a resume of the properties of this radiation. The entire crowd was absorbed—not even the members of the orchestra which had played during the preceding buffet supper left the meeting. With all of the room lights off, the speaker took article after article, exposing them first to the ordinary white rays of a spotlight, then to the ultra-violet illumination. Color changes occurred in nearly every case, but this was not the only effect. Many of the articles displayed, under the ultra-violet, a weird, spectral glow known as fluorescence.

It seems that there is no definite method of determining beforehand whether any substance will show this property of fluorescence, the only way to tell is to actually try it out under the ultra-violet radiation. A piece of cotton cloth was exhibited which had been daubed with dyes known to fluoresce. It looked like a towel in a dyehouse washroom, but under the magic rays became a thing of beauty. A prosaic piece of wood glowed strangely, cheap beads and jewelry became more brilliant than precious gems. The interest of the audience was thoroughly aroused, they were in a receptive mood to hear and to learn of some of the practical and valuable applications of the ultra-violet radiation. Physicians and dentists are finding it of aid in diagnosis and treatment of disease. Jewelers are able to more easily and more accurately distinguish true from imitation gems. Fraudulent paintings, statuary, and other art objects of reputedly great age have been exposed. There are definite possibilities in the field of color analysis. Trick lighting effects, especially suited for theatrical use, are possible and are extensively used.



President-Elect W. H. Cady

Pleasing and startling effects are possible when clothing and other textiles are dyed with colors known to show fluorescence. This was illustrated when the speaker had a young lady do a tap dance, clad in a ballet costume so treated. Under the white light the outfit seemed the typical dancing garb; but when the ultra-violet light was turned on it glowed like phosphorus. On a chart the ultra-violet rays were shown as those just beyond the visible violet, but too short to be perceived by the human eye; just as at the other end of the visible spectrum the infra-red rays are a bit too long to be visible.

The convention thoroughly enjoyed the demonstration and talk, and showed it by enthusiastic applause. In passing it might be mentioned that the next day the writer ordered a couple of 2 watt argon glow lamps from a lighting concern, hoping that these inexpensive little lamps might provide a small source of ultra-violet for some minor experimentation. They haven't arrived yet.

Optical Instruments for Textiles

The study of optics and of optical instruments' has produced much of value for the textile chemist and colorist. It is a far cry from the familiar pocket yarn counter to the modern binocular microscope, yet both serve a definite and useful purpose. True binocular microscopes make possible the study of magnified images that possess depth as well as width and breadth—images that are exact enlarged facsimiles of the specimen. The wide-field binocular microscope is particularly well-adapted for textile use, being suited for dissecting work, for identifying types of weaves, for investigating pile fabrics, etc.

The value of an accurate method of determining the maturity of cotton fibers has been acknowledged and a suitable method sought for some time; with

(1) "A Resume of the Properties and Uses of Ultraviolet Radiation", by Joseph L. McEwen of National Aniline & Chemical Co.

(2) "The Application of Optical Instruments in the Textile Industry for Routine and Research", by J. H. Schering of the Bausch & Lomb Optical Co.

the polarizing microscope it is now available. The work of Professor Schwarz of the Massachusetts Institute of Technology in this regard was lauded. With a microscope projector, in a single unit, a highly magnified image of a fabric may be shown on a screen, enabling a number of individuals to view it simultaneously. Lighting is so arranged that the specimen may be examined by transmitted, reflected, or oblique illumination. Defects of knitting and weaving stand out with startling clarity and are easily detected.

New and interesting is the optical apparatus for grading wool and other textiles by actual measurement of fiber diameters. Photomicrography is finding considerable use in the field of textiles, the technique being simple and the equipment not expensive. The microscope is of much value in the field of fiber identification.

A motion picture entitled "Eyes of Science"[3] illustrated the painstaking care necessary in producing optical glass suitable for making lens, and the intricacies of lens grinding. Glass for lens use must be carefully compounded and the melt very slowly cooled. High-powered lens, some of them no longer than the head of a pin, have to be so accurately ground as to allow of an error in figuring of less than a wave-length of light. The means by which such precision is possible, making use of the principles of Foucault and others, and the shadow ring effect, were graphically illustrated.

Ageing Tests for Weighted Silk

The sessions Saturday were opened with a consideration of suitable ageing tests for weighted silk[4]; and the relation between test methods and actual exposure to heat, air, and light. An accurate laboratory test to indicate the relative stability of weighted silk is needed. This and other work to help the producer and the consumer of silk goods is being undertaken at the National Bureau of Standards in Washington. It was noted that silk dresses will deteriorate more rapidly when worn in the bright sun than when worn in the evening hours.

Outstanding work at the Bureau of Standards is also being done on wool[5], by one of the research associates of the American Association of Textile Chemists and Colorists. Previous reports of study of the carbonization process and other factors in the processing of wool have shown the value of this work; and the data presented on the chemistry of wool was closely followed.

An Outline of Cotton Printing

To an outsider (maybe to an insider too) a cotton printing machine is just about as complicated and as fascinating as anything could be, so a discussion of cotton printing[6] presented in popular fashion was much enjoyed. Patterns must be planned, colored zinc etchings produced, the etchings transferred by engraving to the copper roll, the rolls accurately placed around the central cylinder, all before the machine is ready. The preparing of the color pastes is truly an art, the possibilities for grief to come to pass are innumerable. But once set up in proper running order, with rolls and color just right, the output of a single printing machine is enormous. The pantograph used in engraving the copper rolls, similar to that used by the engraver of personal calling cards, is particularly interesting—with its aid the design on the zinc etching is accurately transferred to the copper roll.

(3) "Eyes of Science", a motion picture presented by Mr. Schering.
(4) "Accelerated Ageing Test for Weighted Silk", by William D. Appel and Daniel Jessup of the National Bureau of Standards.
(5) "The Chemistry of Wool and Its Relationship to Practical Processing", by Milton Harris, A.A.T.C.C. Research Associate at the Bureau of Standards.
(6) "Cotton Printing: An Outline", by Samuel I. Parker of the Ciba Co.

Developments in Sulfur Dyestuffs

Sulfur dyestuffs[7] represent a most important class of colors, requiring some skill in their proper application but producing dyeings of superior quality. A chrome and acetic acid after-treatment of sulfur dyed raw stock greatly improves the color fastness but has caused difficulties in spinning the yarn. A new softening treatment makes the yarn spin perfectly. Furthermore, it is said that the possibility of tendering on storing the sulfur dyed material is eliminated; the reaction is carried to completion in the wet processing operations with no possibility of any undesirable developments occurring later. These are important advances in the technique of sulfur dyeing.

Analytical Test Methods

Developments in the field of pure chemistry warrant close attention from the industrial chemist. Here is the source of so much that is of value in solving every-day problems in processing textiles. The convention was given a comprehensive review of recent analytical methods with particular attention to their application to textiles[8]. The trade journals have carried a great deal concerning micro-chemical methods of analysis; it was suggested that the semi-micro methods would be worthy of investigation. Apparatus is inexpensive and the technique perhaps simpler. This type of work is being applied right along to spot analysis and it is no doubt the only way of making an accurate chemical analysis of a spot—the amount of the spot-causing substance is so small that it would in most cases be lost, or more likely changed, in attempting to remove the substance for study. The micro work can be done in situ.

Most of us who have in a few short years seen the pH scale of 0.0 to 14.0 grow from a laboratory curiosity to a general application almost as common and valuable as the thermometer scale were perhaps not surprised to learn that another important tool of the chemist would be generally available for routine work as soon as a suitable and convenient scale is evolved. This new tool would be the oxidation-reduction series of reactions that play so important a part in all laboratory work. But of course the oxidation and reduction reactions are not limited to the textile laboratory—a great number of the regular wet processing operations come under this classification. Among them are bleaching, scouring, kier-boiling, stripping, reduction, development, etc. The life process itself is largely a matter of oxidation and reduction and it was suggested that perhaps the textile chemists might look to the bio-chemists for aid. The present method of measuring these reactions by voltages is not suited for general use, but they are so important to the mill chemist that some suitable scale must soon be developed. And with this development the ties between the laboratory and the dyehouse, between the chemist and the operator will be more closely drawn, with resulting benefits to both.

Sulfonated Oils

That hardy perennial, sulfonated oil, came in for its usual share of attention, this time in an effort to determine whether it is the sulfur trioxide (SO_3) content or the fat content of the oil which is of greater value[9]. The speaker being a member of the AATCC "Subcommittee on Methods of Analysis and Standardization of Sulfonated Oils" his paper might be said to represent another notable contribution of this

(7) "Some Recent Developments in the Application of Sulfur Dyestuffs", by John L. Crist of The Calco Chemical Co.
(8) "A Review of Recent Analytical Methods with Special Applications to Textile Analysis", by Irving W. Grote of the University of Chattanooga.
(9) "Comparative Tests for Value of Sulfur Trioxide in Different Amounts of Sulfonated Oil", by Albert H. Grimshaw of N. C. State College.

group toward the true appreciation and evaluation of the sulfonated compounds for textile use.

Conditioning of Water

Many different chemicals, dyestuffs, and assistants may be used to arrive at equivalent results, but water is one raw material with which every wet processor of textiles has to deal. So all mill men are interested in water and how to make it better fit their needs and requirements. Those present at the meeting had the pleasure of hearing a concise but comprehensive summary of the advances that have been made in the pre-treatment of water[10]; that is, in the treatment of surface and well water before it enters the softening equipment.

In these pre-treatments color, turbidity, iron, manganese, etc., may be successfully removed. A much lighter load is thus placed on the softener, with corresponding savings and increased efficiency. Iron and manganese are particular objectionable in textile processing, but their removal has been developed to the point of being an art. For the actual softening process, automatic water softeners are now available that are both efficient and dependable. This dependability of the new equipment is particularly important, the operator may confidently expect it to deliver soft water at all times without attention. It is not necessary to watch the meter and periodically stop everything to backwash. When the softener has reached its rated capacity it automatically performs this operation and then goes on delivering softened water.

In the meter head is a setting that makes the electrical contacts necessary to put into action the backwashing and regeneration as needed. The necessary setting is initially determined by testing the water; this is required but once unless of course the character of the water changes materially. Such automatic equipment removes another source of worry and hazard from the operator, enabling him to have more time to devote to phases of the work which must have close personal attention.

Importance of Finishing Operations

The importance of finishing operations to yarns and fabrics[11] is just now being fully realized. Perfectly scoured and dyed goods may still become of inferior quality by improper or inadequate finishing. Even finishing operations that seem to be permanently established as beyond reproach yield interesting data upon close scrutiny; data that lead to improved results. The familiar soaping of vat dyeings seems to be in this category, if the interpretation of recent exhaustive work is conclusive. By numerous sample dyeings it was indicated that the substitution of Gardinol for soap in finishing noticeably increases the light fastness of many of the dyestuffs. The greatest increase of light fastness was often noted in the dyeings usually least resistant. It was further noted that by carrying out the oxidation and finishing operations simultaneously, superior results were obtained.

Peroxide Bleaching Tests

The use of peroxides for bleaching textiles[12] of all kinds has shown a steady and imposing growth, particularly in recent years. In a careful consideration of the bleaching operations using peroxides or perborates, and the factors affecting their stability, the familiar silicate of soda came through with flying colors. It is still the recommended stabilizer for peroxide bleach baths.

Experimental and practical bleaching tests show that when silicate of soda is used for this purpose it exerts its most efficient action, both as regards maximum speed and efficiency of bleaching and minimum loss of oxygen, at a pH of 9.8 to 10.2.

Other factors such as temperature, pressure, type and fabrication material of equipment were also discussed. Successful peroxide bleaching of cotton goods in iron kiers is said to be not difficult and is being done every day in a number of mills; it is only necessary that the kier be properly coated, which is simply done.

Synthetic Resins

If a poll were taken to determine the subjects of most interest to technical men in the country today, there is no doubt of it that synthetic resins[13] would make the first team. There appears to be no limit to their aplications, and the textile industry has not been overlooked. Fabrics of various kinds are being impregnated with the synthetic resins to obtain valuable and often unique results. These impregnated textiles must be distinguished from the familiar coated materials, such as oilcloth, floor coverings and the like, that have been in use for generations. But these latter are not pure textiles: they lack the softness, the permeability, the absorbency and other qualities we associate with textile fabrics. In them the woven structure is really only a backing for the applied film.

Retiring President Rose

But today, the convention was told, synthetic resins can be applied to lend useful properties to textiles without in any way impairing the desirable properties the materials already possess. Many treated fabrics were shown which amply bore out this statement. The Tootal anti-crease process, whereby fabrics composed of vegetable fibers can be made to have much of the crease resistance shown by silks and woolens, has been publicized and is generally familiar, but for many present this was the first opportunity to actually see and handle goods so treated. Cotton and linen fabrics were shown that sprung up smiling after being crushed in the hand. This process may mean the rejuvenation of the cotton suit business that had a mushroom growth a few years ago, only to fade because of the fact that the suits, after a few hours wear, would have more wrinkles than the senior Rockefeller. But this anti-crease effect is only one of many possible applications.

A noteworthy advance in the technique of handling these synthetic resins is that it is now possible to prepare and hold them in the water-soluble or dispersable form for long periods of time; yet in just a few minutes they may be transformed into the water-insoluble form directly upon or within the material under treatment. In most cases the whole process may be carried out in standard dyehouse equipment already possessed by the average mill. It is of course usually possible to apply the resins from a solvent bath other than water, but this would not be desired in the average finishing plant.

A recently published list of the synthetic resins

(10) "Conditioning Water for the Textile Industry", by H. H. H. Morrison of the Permutit Co.

(11) "The Influence of the Finishing Operations on the Light Fastness of Vat Dyeings", by Chas. Seibert of E. I. duPont deNemours & Co.

(12) "Peroxide Bleach Baths and Some Factors Influencing their Stability", by D. J. Campbell, of R. & H. Chemicals Dept., E. I. duPont deNemours & Co.

(13) "Synthetic Resins: Their Development and Application to Textiles", by D. H. Powers, of Rohm & Haas Co.

ran into the hundreds; some that have been or can be applied to textiles are the bakelite (phenol-formaldehyde) type, vinyl, urea, cellulose acetate, etc. There are many patents covering this resin field.

A number of samples of the various synthetic resins was shown the audience, in several stages of manufacture and in a variety of forms. One sample in particular drew attention; it possessed an elasticity seeming to equal that of rubber and was perfectly clear and transparent. The major advance in this present treatment of textiles with synthetic resins, and what has made possible these amazing and genuinely new fabrics, is that instead of being present merely as a surface film the resins are present directly within the fiber. Modern dispersing agents and surface tension depressants have contributed a part to this achievement. While material may be impregnated with the resins and yet show no visible evidence of the impregnation (desirable in many instances) it is also possible with them to obtain unusual and pleasing effects of color, design, etc.

Handling and Applying Fast Colors

With the quality market for textiles reappearing after an absence of several years, the technology of handling and applying the fast colors becomes of increasing interest and importance to every textile chemist and colorist. Hence the paper covering new developments in the application of naphthols and vats[14], both for dyeing and printing, was very much in order.

The technical program closed with a report from the research associate of the Raw Silk Committee of the National Association of Hosiery Manufacturers[15]. The hosiery industry is now a major consumer of raw silk, and this committee has developed standards for the hosiery manufacturers covering color and "evenness" of raw silk. Some of the defects of silk hosiery and means of overcoming them were considered, while a definition to distinguish first and second class hosiery was offered. Most of the raw silk consumed in the South goes into hosiery, and it was noted that southern hosiery mills had a good representation in the group hearing the discussion.

The papers as a whole presented at the convention tied in together beautifully. One whole evening was devoted to the application of optics and of optical instruments, broadly considered. Nearly every one of the many operations involved in the wet processing of textiles received some consideration; recent developments in bleaching, dyeing, and finishing were announced and described; the raw stock was not overlooked, nor was the water supply. Finishing processes and methods came in for especial attention; to the writer it seems that this phase of textile technology is showing particularly the benefits of research work that has been done. A reference literature of analytical methods for the textile chemist is being gradually developed; a notable addition to the literature was made at the convention, by one of the speakers.

Aside from the excellent program, several other features served to make the convention memorable. At the textile ball which followed the annual banquet, a style show was presented by Lovemans, Inc., of Chattanooga with the co-operation of the Cotton-Textile Institute. Local debutantes acted as models for the showing. The chemists and colorists saw their art as ultimately employed, and not in the familiar warp, skein, cone, and roll form. In conjunction with the convention Chattanooga firms illustrated products of textile chemistry manufactured in the city. This was done by means of window displays in the retail stores. Each window carried a card announcing the annual meeting of the American Association of Textile Chemists and Colorists in the city, and another card reading "A Product of Textile Chemistry." There were fourteen of the window displays, all within two blocks of the convention headquarters.

(14) "New Developments in the Application of Naphthols and Vats for Dyeing and Printing", by S. H. Williams of General Dyestuff Corp.

(15) "Activities of the Raw Silk Committee of the National Association of Hosiery Manufacturers", by E. M. Schenke of the National Association of Hosiery Manufacturers.

Textile Testing Laboratories

(Continued from page 49)

conditioner will be thoroughly washed and purified—a feature sometimes overlooked— or at least not provided.

The ideal system provides for ample heating in cool weather and for complete mixture of heated and humidified air to an extent quite impossible when independent heating and humidifying agencies are used.

Full advantage may be and should be taken of the cooling power of evaporation in maintaining desired indoor conditions; this will save refrigeration—again, a feature often overlooked.

Sufficient refrigerating capacity should be provided to maintain room temperature and humidity at the specified level during summer weather when testing in accordance with prescribed methods would otherwise be impossible.

Systems which can humidify but cannot dehumidify cannot possibly maintain fixed conditions in all seasons. Systems which can humidify or dehumidify but which have no independent temperature control also fall far short of meeting requirements for a laboratory.

Many laboratory conditioners have no means of controlling temperature except during cold weather. The ideal system will maintain a fixed (although, as we have noted, adjustable) temperature during all seasons, regardless of outdoor variations.

As explained previously, close temperature and humidity control are both essential if constant and uniform regain conditions are to be maintained during exposure and test. A system which will maintain constant regain conditions at all times without uncertainty and guess-work has many advantages and economies.

And to be sure of all these things, regulators that are at once sensitive, reliable and accurate are the final essential.

Onyx Oil & Chemical Co. Celebrates 25th Anniversary

The Onyx Oil & Chemical Co., Jersey City. N. J., brought to a close its 25th year in business with a silver anniversary banquet on December 28 at the Hotel Edison, New York City. More than 100 were present, including officials, department heads, sales representatives and guests. Silver plaques were awarded to the co-founders of the company, Victor H. Berman and Richard Von Oesen, all workers of the company contributing to the cost of the plaques. Special presentations were made for long service to the company. Elgar A. Brick and Dr. Philip Kaplan were presented remembrances in honor of 25 years of service, and William Farley for twenty years of service. Awards were made in the sales contests among the representatives, first prize being won by Edward Klumph, southern representative.

WARP SIZING, by Paul Seydel (Article 3)

Gums and glues used in sizing and finishing are covered in this installment. Causes and effects of warp sizing troubles will be covered later . . . .

IN THIS, the third in a series of articles by Mr. Seydel, the gums and glues used in warp sizing and finishing are covered. In the first article, page 43, November issue, a non-technical analysis of the composition of raw cotton was given; in the second, page 44, December issue, flours and starches were discussed. Reprints of previous articles are available upon request . . . . .

Gums—Glues

IN ADDITION to flour and starch, a number of natural and chemically prepared gums are used in sizing and finishing. These gums add to the starch certain properties of adhesiveness, elasticity and strength, of which pure starch is deficient.

Gums are organic substances, amorphous, that is, having no crystaline or determinate form, mostly like starch, of vegetable origin and composed mainly of carbon, hydrogen and oxygen; usually containing some inorganic matter and sometimes nitrogen in small proportions. They are obtained either from vegetable exudation or treatment of the plant with proper solvent. They either dissolve in water or swell indefinitely until a mucilage is obtained.

The formation of gums is affected by temperature, moisture, climate and other changes. It is brought about by enzyme activity. An enzyme is an unorganized ferment. The zymogen, or mother substance, is found normally in small quantities at certain seasons, but certain stimuli cause the formation of enzymes in quantities, liquefying the pectic or gummy substances faster than they can be removed, depositing them either in the tissues or exuding a gummy mass which dries in nodules on the bark or wounds of plants. It occurs in the woody tissues of most vascular plants, or such plants of which the structure is composed mainly of vessels.

Gums are very important to protect plants from serious injury from surface wounds or fungus attack such as mold, mildew, rust, etc.

Gums are related to starch in composition, in fact starch can be treated chemically to duplicate and even improve on most natural gums susceptible to textile use. From the chemical standpoint such gums as gum arabic, gum tragacanth, and other gums of this class are acids of complex nature yielding, by hydrolysis or elimination of water, sugars and simpler acids. The combination of the acid nucleus or center with its ethereal linkings varies somewhat in different seasons, so that the properties of the gum of a certain plant are not always identical.

The number of gum compounds found in nature is very considerable and their constituents, among them substances named bassorin, cerasin, and arabin from different gums, apparently are not identical.

DePierre, author of one of the best books ever published on sizing and finishing, describes some of these gums and their application and infers that starch properly blended and having received the right chemical treatment will replace advantageously most of the natural gums and glues for sizing and finishing, and he describes dextrine, apparatine and other starch derivatives as far back as 1879. Since then a great variety of gums have been produced from starch, some reacting to iodine more or less like starch, others having completely lost this property.

Percy Bean also infers the same thing as follows: "If the matter would be considered carefully, such gums as gum tragacanth would disappear from finishing altogether. In mixings where it is used the amount of actual gum is infinitesimal, and what good results can be expected from this small quantity is beyond the understanding of the authors."

It may be said, however, in defense of such natural gums which require a great amount of water to obtain their solutions, that very small quantities of certain ingredients may be very active. However, the proper blending and the proper chemical treatment of starches undoubtedly produce gums of much lower cost and greater efficiency, besides being infinitely more uniform in composition and quality, and being much easier to preserve against decomposition, mildew, etc.

The purification of gums not derived from starches offers very serious problems, especially those which naturally have mucilaginous properties. Nature, not being concerned with textile problems, has filled them with impurities which must be eliminated and for this they are put in solution sometimes as weak as one or two per cent involving costly and tedious processes of filtering and purification. Starch, on the other hand, exists in nature in such a form as to be cheaply and easily purified, and when these starches are obtained in clean and pure state they are an excellent raw material for the production through a variety of chemical treatments of a long list of gums, in many ways far superior to the natural gums. Gums produced chemically are for this reason more reliable and more desirable as well as more economical than the natural gums.

Among the gums mostly used in sizing and finishing are:

Gum Arabic (Gum Acacia). This gum is derived mostly in Africa from a native acacia. It has very excellent adhesive properties and is susceptible of con-

siderable changes in quality and properties according to whether it has been treated with an acid, an alkali, or different salts. The main constituent is arabin (arabic acid), which combines with a number of bases. Picked Turkey gum is the best.

Gum Tragacanth, Gum Dragon. This gum is the product of exudation from incision in the stem of Astragalus-Gumifer growing in Western Asia, the principal markets being Smyrna and Constantinople. The best is the white flaky grade. It is dull white, translucent, or yellowish. Chemically it contains arabin and bassorin. It also contains about ten per cent of a soluble gum; five per cent of starch and cellulose; three per cent ash, mostly calcium salts; twenty per cent of water. It is insoluble in alcohol and ether, and only slightly in water. It swells up, forming a thick mucilage with a great volume of water, giving the iodine starch reaction. It is used as a stiffening material for textiles.

The inherent qualities of gum tragacanth from the standpoint of sizing and finishing are counterbalanced to a great extent in that it takes too much water to obtain a solution. Solutions are imperfect and not easily protected with antiseptics as antiseptics do not penetrate it satisfactorily. The use of this and similar gums promotes the growth of micro-organisms such as mildew. The price is out of proportion to its value as a sizing and finishing ingredient considering that its properties and those of similar gums can be matched by the proper blending of starch and gums derived from starch.

Cherry Tree Gum. This is a colorless or yellow substance with very good stiffening qualities. Its main ingredient is cerasin.

Sugar Beet Gum, and a number of other gums are more or less similar in appearance and action to those mentioned. The birch, the ash, the oak, the willow and a number of other trees all yield a similar gum.

Carrageen, Sea Moss, Irish Moss, Iceland Moss, are a number of species of sea weeds found on rocky seashores. After being gathered the weed is washed, bleached in the sun and dried and packed for the market. Pectin or vegetable jelly form the main constituent of the weed. To prepare for use the weed is steeped and boiled with water, treated with acids and alkali. An alkaline treatment improves the adhesiveness of the mucilage. This mucilage is strained before use. Alcohol precipitates the pectin from its solution. The advantages and objections to the use of these gums are similar to those mentioned in the case of gum tragacanth and gums of like nature.

Gelatine, Glue, Bone Size. The raw materials used for the production of glues consist of the waste from leather plants, slaughter houses, trimmings of hides and bones. The glue is extracted from these materials with water and acid at a high temperature; this solution filtered into congealing boxes. Drying must be effected carefully to avoid spoiling the material. Liquid glue is produced by the treatment of bone glue or gelatine with acid; it has good adhesive qualities. Gelatine is a finer grade of glue derived from skins and bones. Glues and gelatine have been used in sizing and finishing especially where perfect transparency is desired. The main objection to the use of glue and gelatine is that they decompose readily and impart a very disagreeable odor to textiles.

Dextrines (Starch Gums, or British Gums). Carrying on the transformation of starch beyond the stage called soluble starch and by hydrolysis or the elimination of water with acids, ferments or heat, dextrine is obtained as an intermediate product between starch and sugar. It is an excellent substitute for gum arabic, formerly used in the process of calico printing and as a stiffening agent in sizing and finishing. It is the gum now used on the back of postage stamps. Its superiority to natural vegetable gums is due to its greater flexibility and elasticity, being less brittle than gum arabic when dried, yet its adhesive properties are excellent.

Commercial dextrines are produced by moistening potato, corn, tapioca, wheat or other starches with acid and drying at 100 degrees C, or simply by heating the starch at 250 degrees C. Such dextrines contain dextrose and unconverted starch in considerable proportions. The production of pure dextrine is a delicate chemical problem.

Apparatine and other Starch Gums. Besides dextrines a number of gums more or less soluble, more or less adhesive, more or less elastic, can be produced from starch. A fairly strong solution of potassium or sodium hydroxide added to a mixture of starch and water renders the opaque mixture perfectly transparent; producing a stiff powerfully adhesive paste.

This paste after partial neutralization with an acid is called apparatine and was described as far back as 1879 by DePierre. It is an excellent gum far outweighing in quality a number of much more expensive natural gums.

Borax, and a number of other metallic salts such as zinc chloride, calcium chloride, etc., act on starches to produce different gums, many of them forming the basis of sizing and finishing gums of excellent qualities.

In analyzing such starch gums an inexperienced chemist is inclined to report it simply as starch, especially if it happens to show an iodine reaction. This would be very misleading.

Take as an example three mixtures extremely different in physical appearance and in their application which will analyze identically. For instance:

Water 65 per cent.
Starch 28 per cent.
Total Sodium and Chlorine 7 per cent.

Many difficulties will confront the chemist in explaining the difference in appearance and properties of the three gums.

First, after chemical treatment it will be practically impossible to differentiate between potato, corn, wheat, rice and a number of other starches.

Second, unless he is a gum expert, with exceptional knowledge and experience, he may not know that the appearance and properties will depend on how the elements have been introduced.

The first gum may just be a boiled starch paste made of thin boiling starch and the addition of 7 per cent of common kitchen salt (NaCl).

The second may be obtained as follows: The starch treated with hydrochloric acid up to a certain point until transformed into a very adhesive and sticky gum, then neutralized with caustic soda. It will have great adhesive properties such as the gum on the back of postage stamps.

The third gum may be starch first mixed with a caustic soda solution, stirring for a period either cold or hot, then neutralized with hydrochloric acid. This gum will be tough, elastic, agglutinant and have neither the paste value of starch paste nor the strong adhesiveness of dextrine, but will be wonderfully elastic and practically insoluble once dried.

All three of these gums show iodine reaction and are likely to be reported as starch paste by the careless or incompetent analyst. The starch gums that do not react to iodine generally are a great puzzle to the inexperienced chemist and the study of this subject is very fascinating to the enthusiastic gum chemist.

To sum up: From the standpoint of the textile executive or mill superintendent, any desired type of gum can be made from the different starches or combination of same through chemical action on them. These can also be produced cheaper and in a cleaner state and higher degree of uniformity than is possible with the natural gums. They can also be made so that a higher concentration can be obtained in solution. It is impossible to obtain high concentrations of solids in a solution of the natural gums commonly used in old style sizing and finishing.

Further, most gums require considerable technique and long length of time for them to go into solution or absorb uniformly large quantities of water. Therefore, it is inefficient to use dry gums of the natural type unless previously put into solution. This is necessary to insure the maximum efficiency from them. This handicap causes most mills to use gum which is already in solution, and as pointed out, since the natural gums can only be put into dilute solution, a great deal of waste is encountered in paying freight on the water content.

Like all good things, gums improperly used are apt to cause trouble, which local conditions and the pH of some waters may bring about or accentuate. Among the most troublesome are the tendency to cause the sized warp to stick to the drying cylinder and the tendency that a colloidal size has to foam excessively in the size trough. The causes of this are too many to discuss in a short article, each cause requires a special remedy. An ingredient that will satisfactorily stop sticking or foaming in one case may utterly fail in another.

We shall treat the causes and effects of some common warp sizing troubles in a subsequent article.

World's Leading Rayon Producing Countries to Establish Record Outputs for 1935

The United States will not be alone in establishing a new high record output of rayon yarn and fiber for 1935, as England, Japan and Italy, other important producing countries also will establish new records according to the current issue of the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

Japanese production of rayon for the ten months ending October 1935 showed an increase of 45 per cent compared with the corresponding 1934 period. At this rate the indicated 1935 Japanese rayon production would reach a new high of about 220,000,000 pounds compared with 153,100,000 pounds for 1934.

Italian rayon production totaled 84,749,000 pounds for the seven months ending August, an increase of 43 per cent over the 59,023,000 pounds output for the corresponding 1934 period. Government orders are responsible for the Italian rayon boom, principally for the supplying of rayon underwear for the troops in Ethiopia. Even the normally large exports of rayon and rayon products have declined appreciably to supply the new and pressing requirements of the War department.

British production of rayon yarn and products totaled 89,490,000 pounds for the nine months ending September 1935, an increase of 32 per cent compared with output of 67,500,000 pounds in the corresponding 1934 period. The bulk of this increase was in yarn taken by the weaving industry.

Old Dominion Box Opens Factory in Charlotte

The Old Dominion Box Company, of Lynchburg, Va., has just announced the opening at Charlotte, N. C., of its newest, largest and most modern factory—the largest single unit in the Southeast manufacturing all types of containers and cartons. The new plant occupies 30 acres, and the buildings cover 240,000 square feet of floor space. Around 300 people will be employed.

The firm's new merchandising program of "Co-ordinated Packaging" will be carried out from the design to the finished product, furnishing a complete packaging service including all types and grades of corrugated shipping containers and corrugated materials. "Co-ordinated Packaging" is explained by D. H. Dillard, president, to mean "the idea of ensemble packaging, so that one's complete wrappings of a product will be harmonious, and of distinctive design. Just as a woman wears a complete outfit of the same, or contrasting colors, so should one's product be dressed by having the seal, band carton, box and shipping container, as well as counter and window displays, of the same design and color scheme. At the same time this will be economical for by having the same design and producing the work all at one time, there will be considerable savings in art work, plates, printing and general details."

The Old Dominion company, starting in 1905 at Lynchburg, now has plants at Lynchburg and Pulaski, Va.; Burlington, Winston-Salem, Asheboro, and Charlotte, N. C. The Charlotte plant manufactures folding and set-up boxes, shipping containers, labels, seals, bands and displays, and also furnishes all types and grades of corrugated shipping containers and corrugated materials, i. e., regular double-faced corrugated, in either *A* flute or *B* flute construction, and double wall, containers and board; also single-faced corrugated in rolls or sheets. A complete art department is maintained. George H. Bierbaum is in charge of sales of the shipping container division.

Norma-Hoffmann Appoints Batson-Cook Company

Batson-Cook Company, West Point, Ga., have been appointed distributors on textiles in the Chattahoochee Valley and neighboring territory by the Norma-Hoffman Bearings Corp., manufacturers of precision bearings, Stamford, Conn.

THE PIONEER--By William P. Jacobs

The sixth of a series, taken from Mr. Jacobs' new book and presenting the lives, records and achievements of some Southern textile pioneers .

IN THIS, the sixth installment, the stories of the lives and achievements of Moses and Ceasar Cone and Braxton Bragg Comer are delineated. This series represents a reproduction, in large part, of the new book by Mr. Jacobs, "The Pioneer", recording the lives and records of southern textile pioneers . . . . . .

MOSES H. AND CEASAR CONE

True pioneers in any endeavor are rare, but it is very exceptional to find brothers cast in such a role. This unusual circumstance, however, did happen in the textile industrial development in North Carolina.

The Cone brothers were pioneers of the first water in the field of denims, a most important branch of the textile industry.

Starting as novices in the industrial field, within a remarkably short time they became all-powerful factors in the denims market.

Their rapid rise was based on sound business judgment and two closely correlated, progressive spirits. As many of the industrial pioneers of their day likewise did, they gained success not merely by their business sagacity, but also by a big-hearted and full appreciation of the welfare of their employees.

No textile executive ever took more interest in their workers or did more for them than did Moses and Ceasar Cone.

As a result, they left to their successors model mill villages, populated by healthy and happy workers—a solid foundation for the building of any future industry.

The Cone brothers' success pays tribute to their parents, Herman and Helen Cone, whose thrifty, industrious habits and sound views of life and business had much to do with shaping the careers of their illustrious progeny.

Moses and Ceasar Cone were born in Tennessee, Moses in the year 1857 and Ceasar in 1859. During their youth, the father moved to Baltimore and there established a wholesale grocery house, which became in the year 1878 the firm of H. Cone and Sons. When this firm was dissolved in 1890, Moses and Ceasar Cone formed the Cone Export and Commission Company, handling cotton goods in New York City.

It was through this sales organization, which remains today a leading factor in the marketing of southern-made cotton fabrics, that the Cone brothers became acquainted with mill owners, mills and manufacturing. Desiring to maintain an even closer contact with the mill owners, the Cone Export and Commission Company established in 1893 a main office at Greensboro, N. C., a city which has the advantage of proximity to cotton fields, gins and warehouses. However, the New York office remained the general sales headquarters.

Through their close association with the cotton manufacturers, the Cones saw great possibilities in cotton spinning, and determined to begin the manufacture of denims. They acquired several hundred acres of land on the outskirts of the city of Greensboro, alongside of the main line of the Southern Railway, and erected in 1895 and 1896 the mills of the Proximity Manufacturing Company—so named because of the nearness to the source of supply—and began the operation of their 240 looms. After ten years of remarkable success, the company built nearby the White Oak Mills, which have become the largest denim manufacturing plant in the world.

Becoming more familiar with the market for work clothes, Ceasar Cone later organized the Proximity Print Works, in order to secure foreign markets, which absorb large quantities of indigo, drills and khakis. The Proximity Print Works has since gone into the printing of art ticking for mattress covers, and is a large industry in itself, with a present capacity of 125,000 yards a day.

In 1890, Greensboro had 3,000 people. It is now a city of 53,500 population, its growth being due quite largely to the progressive spirit and vision of the Cone brothers.

Moses Cone did not see his great ambitions fully realized, for he died in 1908, leaving his brother Ceasar to carry on most successfully. However, Moses Cone was a dreamer of dreams, and a doer of great deeds. It has truly been said of him: "He established high ideals in the textile industry, and his benefactions remain to bless future generations."

The Cone Mills reached the point where they were producing one-third of the denims made in all the world, and the denim market looked to Ceasar Cone to forecast the demand and to set the pace in production.

Ceasar Cone was the first man in the textile industry to recognize the fact that work clothes are a necessity in commerce; that cheap, shoddy fabrics, made into work clothes, are a detriment, a failure, an expense; and that durable, dependable, lasting work clothes are an economic necessity. He was a recognized leader in the industry, and became known internationally as a leader, an organizer and a man who dared.

Before his death in 1917, at the age of fifty-seven, he had brought into the business two younger brothers, Bernard M. and Julius W. Cone. Since Ceasar Cone's death, these men, with Ceasar's son, Herman Cone, and J. E. Hardin, secretary and general manager (now deceased), have taken over the responsibilities of the Cone Mills.

Bernard M. Cone is now president of the Proximity Manufacturing Company, and is not only operating the company successfully, but is amplifying the humanitarian policies with regard to the welfare of the operatives and their families. The employees of the Cone Mills are well housed, well paid and provided with the comforts and pleasures of life; for the management has always realized that the most economical production and resultant profits depend upon the physical, spiritual and mental well-being of their operatives.

The annual pay roll of the Cone Mills is around $3,000,000, and the number of employees averages 3,000. It may be safely stated that the mills provide a livelihood for 15,000 people who live in the mill villages, and for many thousands of other folks who grow, pick and handle the cotton, and whose labors produce other commodities that are used in the mills.

White Oak Mills operate 3,000 looms and 61,000 spindles; Proximity Mills, 1,600 looms and 53,000 spindles; while the Print Works has seven great printing machines, bleachery, dyeing and finishing apparatus.

White Oak Mills manufacture daily 160,000 yards

of denim, and Proximity Mills 90,000 yards each day. The daily capacity of the three mills is 375,000 yards or over 210 miles of cloth per day—sufficient to lay a tread carpet from Buffalo to Albany, N. Y.

The mills consume 82,000 bales of cotton per year, and produce 75,000,000 yards of denims, or 37,000,000 pounds. Add to this the yardage production of the Print Works, 37,500,000 yards, and you have a strip of cloth reaching two and a half times around the earth.

Of the output of these mills, 95 per cent is sold direct to the cutters for making overalls. The goods produced in all three mills is sufficient to make 115,400 garments per day.

They are the largest users of indigo dyes in the world, buying over 2,000,000 pounds of indigo annually. For the baling of their product they use 400,000 yards of burlap per annum.

Through this tremendous production, the Cone enterprise ranks not merely as one of the greatest institutions in the textile industry of the South, but is one of the great manufacturing communities of the United States.

The lives of these two outstanding Cone brothers each justify a separate chapter of this volume. Try as hard as you may, however, it will be virtually impossible to separate the lives of these two prominent pioneers. Their aims, their ideals, their accomplishments were usually identical. Such a beautiful, close association of brothers in business is not common in American history, and it is very exceptional to find two such outstanding pioneers in the same family at the same time.

Greensboro, the state of North Carolina, and the entire cotton textile industry have much to thank Moses and Ceasar Cone for. Their names are inscribed in history along with the greatest of the great in industrial progress.

BRAXTON BRAGG COMER

In the development of each industrial state there usually will be found one or more outstanding lives which typify the very spirit of the state itself. Such a circumstance usually occurs because the life of a constructive leader in many ways will influence development, and the resulting progress will very definitely carry his impress.

Such was without question the case in Alabama during the life and times of Braxton Bragg Comer. When one thinks of industrial Alabama, one thinks of the name of Comer. The family name has long since been synonymous with industrial progress in the state.

However, with this individual, there was an influence far wider than the confines of the industrial life of Alabama. B. B. Comer as president of the railroad commission, as governor and as senator, very greatly influenced the political growth of the state. In the same capacities, he became also a great educational leader—perhaps the outstanding patron of Alabama's educational history. He likewise became one of the state's chief statesmen in the field of moral and social uplift. Through many of the years of his greatest public activity he actively represented and perfectly portrayed the very spirit of Alabama. He was one of her greatest statesmen, her chief benefactor, and outstanding pioneer, and a leader who drew the respect and faithful following of an ardent group of progressive Alabamians.

He and his brothers and sons made worthy contributions to great developments in the fields of agriculture, finance, commerce and industry outside of Alabama, as well as within. Together they were responsible for much of the growth of the textile industry in Alabama and elsewhere during the past two generations.

Braxton Bragg Comer was born at Spring Hill, Barbour County, Alabama, on November 7, 1848, the son of John Fletcher and Catherine L. (Drewry) Comer.

He attended the University of Alabama, the University of Georgia, and Emory and Henry College, graduating at the age of twenty-one, with the degree of Bachelor of Arts.

After college he returned to Alabama and settled at Comer Station on the Montgomery and Eufaula Railroad and engaged in agriculture. It was as a planter that in 1872 he married Miss Eva Jane Harris of Cuthbert, Georgia.

Later he moved to Anniston, Alabama, where he continued his farming interests and engaged actively and extensively in wholesale pursuits, under the firm name of Comer and Trapp.

Mr. Comer was one of Alabama's most extensive and progressive farmers, and at one time owned over 30,000 acres of land, growing over 3,000 bales of cotton annually. He was among the first of the Alabama cotton planters to become a manufacturer of cotton goods on a large scale.

After he moved to Birmingham, Alabama, in 1890, he became president of the City National Bank and the Birmingham Corn and Flour Mills. Later he liquidated the bank and devoted his time to the manufacture of cotton, farming and corn milling. When Avondale Mills was organized in Birmingham in 1897, Mr. Comer was asked to take the presidency of the company, which position he held until his death on July 6, 1927.

Avondale Mills, starting with 30,000 spindles in the first plant at Birmingham, grew progressively, until today there are ten units in seven different communities in the state of Alabama, with a total of 282,160 spindles. They own and operate Eva Jane, the Central, the Sally B. and the Catherine Mills at Sylacauga; the Alexander City Mills, the Sycamore Mills, and the Pell City Manufacturing Company (Avondale Mills also have plants at Stevenson and LaFayette, Ala.) The mills have a varied production, both in yarns and in cloth.

Under the leadership of Governor Comer, the Avondale Mills built up a reputation for honest dealing from Honolulu to the Argentine, and from the western slopes of the Andes to far Norway.

During the re-adjustment following the war, the warehouses of Avondale Mills were full of goods, the cotton mills were shuttting down all over the country, and it looked as though no earthly power could prevent Avondale Mills from shutting down, but Governor Comer said, "I'll run these mills as long as I can borrow a dollar". His first thought always was to keep Avondale Mills strong so that people who moved within its shadow could depend on regular employment.

He never let up on insistence for more and greater care in the manufacture of the products of Avondale Mills, but also he insisted with his selling agents that they get the higher price for the better goods.

His four sons were brought in the business at successive intervals, and today at one and the same time they find themselves outstanding textile leaders following constructively in the footsteps of their father, whose spirit serves as a constant inspiration. During the years of long association they have caught much of his vision and his high ideals. His sons, now actively engaged in manufacture are: J. Fletcher (now deceased), Donald, Braxton B. and Hugh M. Comer.

Mr. Comer entered politics in 1874, when he was elected to the Commissioner's Court of Barbour County, in which capacity he served until 1880.

Through his experience as merchant, planter, manufacturer and shipper, Mr. Comer early realized the need for remedial railroad legislation, and succeeded in unifying shippers of a like conviction. As a result of his agitation in this matter, he was elected president of the Alabama Railroad Commission in 1904, and served two years, just previous to his elec-

tion as governor of Alabama in January, 1907, in which capacity he served until 1911. He was later appointed to the United States Senate to serve the unexpired term at the death of Senator John H. Bankhead.

When Mr. Comer became governor he was fortunate in having a legislature that endorsed the Comer policies, and it promptly enacted the Comer rate and railroad regulatory statutes, and wrote into the state's law the rates that might be charged by the railroads for transportation of the state's basic commodities.

Thomas M. Owen, in his "History of Alabama and Dictionary of Alabama Biography", said of Mr. Comer: "He declared that the interest of the producer and the consumers needed to be more firmly safeguarded against the corporate interests, that the debauching lobby maintained by the railroads and operating in the very halls of legislation must be controlled, and that the sovereignty of the state should not be subordinated to public service corporations whose idea of freight and passenger tariff tax was limited to what the traffic will stand."

Owen also stated that Governor Comer's induction into office was accompanied with brilliant military and civic ceremonies, the most elaborate and impressive since the Civil War, rivaling the historic parade of 46 years earlier, when Jefferson Davis was inaugurated on the same spot as president of the Confederate States.

As governor of Alabama, Mr. Comer, with broad vision and the experience of large affairs, put the law-making body on notice that a liberal policy was to be maintained toward the educational and eleemosynary institutions, a policy which caused his name to be written in the annals of Alabama as a great educational governor. He was recognized as the father of Alabama's educational system as it now exists. When he left the office of governor the state treasury contained little money, but the funds of the state were represented in buildings at the University, Alabama Polytechnic Institute and other educational institutions, and a movement had been put into effect which has resulted in the construction of a county high school in a great majority of the counties of Alabama.

While Mr. Comer was governor, the first law attempting to regulate the ages of children working in mills was written into Alabama statute books. This effort of his grew until in after years the Alabama child welfare laws were among the fairest of those of any of our states, and the administration of these laws was such that directors of child welfare departments from other states were constantly coming to Alabama to study not only their laws, but the administration of them.

Governor Comer was also recognized as the father of Alabama's prohibition laws. The legislature favored the policy of state-wide prohibition and succeeded in passing a state-wide prohibition law which remained on the state books until 1911. He did not quit the fight, and in 1915 saw another state-wide prohibition law written—a law that established prohibition as the state's definite policy. In 1919 the law was further strengthened by friends of prohibition and Governor Comer's policies, and the legislature ratified the national prohibition amendment.

Governor Comer believed with all his might in a fair chance—that a child should have a fair chance for health and education, that a man should have a fair chance to work. As governor, he put schools as far back in the country as children lived; and in the mill villages the children were provided with modern school buildings and playground equipment.

In the latter years he allowed his interest to center on certain activities not directly concerned with manufacturing. Two hospitals were built by his mills, a drug store opened and nurses employed, that employees and their families might have the care that such arrangements provide. A dairy, chicken farm, grist and flour mill, cotton gin and model farming were all added, not only for what it meant to employees on account of purer foods, but as encouragement to the immediate farming communities.

Next to his last instruction was, "Build a riverside camp as an outing place for any one who works for Avondale Mills". The camp that was built on Coosa River was named "Camp Brownie" after Mrs. B. B. Comer, Jr. He loved the camp and his own last happy well days were spent there. It was his wish that in the years to come it would furnish a gathering place for happy families and friends.

His last instructions were, "Pave the streets in the mill village in Birmingham", and this work was begun in the fall after his passing.

Governor Comer took great interest in the whole community. He built a school house and named it after his mother, "The Catherine Comer School". He and his youngest brother, Mr. E. T. Comer, founded an endowment fund which guarantees for all time a full nine months term, with extra pay for the teachers. He also built a school for the negro children, "The Beckie Comer School", named for the oldest living Comer ex-slave.

Nothing gave him more pleasure than to ride over the farms and speak words of encouragement to the negro tenants.

Throughout his thirty-seven years of residence in Birmingham, Mr. Comer was active in social and civic affairs. He also served as superintendent of the First Methodist Church Sunday School, as steward and as trustee. It was through his interest and enterprise that a lot was bought and the Sunday School building erected for the First Methodist Church of Birmingham. And it was Governor Comer who brought a carload of books from New York, while he was superintendent, and established the Sunday School Library of the First Methodist Church.

Mr. Clark Howell, editor of the *Atlanta Constitution*, said of Governor Comer: "He was one of the most remarkable men I ever knew—one of the 'Old Roman' type who stood for what he thought, and was always ready to fight for it."

Governor Graves of Alabama stated: "He was a great governor, a strong senator, and an upstanding and fearless citizen. He was true—true unto himself and unto his own, unto his people and unto his God."

There are perhaps a number of cotton manufacturers who, as industrial pioneers, blazed an important trail in the industrial field. There are a few who succeeded as well as did Mr. Comer. There are no doubt some who were as extensively engaged in farming and merchandising. There have been isolated instances—some mentioned elsewhere in this volume—where cotton manufacturers have become outstanding statesmen, as did Mr. Comer. The annals of history, however, record very few, if any, instances where cotton manufacturers have displayed such outstanding versatility, and have succeeded so signally in the several important fields of industry, commerce, agriculture, finance, statesmanship and education.

Governor Comer was as unusual in his versatility as he was outstanding in his leadership. The state of Alabama will long feel the influence of his constructive life and will for centuries enjoy the fruits of his pioneering.

Donald Comer, who succeeded his father as president of Avondale Mills, and to a slightly lesser degree his brothers, have since the death of the governor supplied Alabama and the entire industrial field with an exceptionally high standard of foresight, business sagacity and leadership.

(To Be Continued)

THE LONGEST-WEARING BELT EVER BUILT

TWO TO THREE times longer service than any other make of belt! That's the record of the Goodyear COMPASS (Cord) Belt on the most vicious belt-eating drives in the textile industry. Incorporating Goodyear's own long and intimate experience in cotton production difficulties, COMPASS Belts are scientifically built to withstand the humid temperatures—to maintain even tension—to hold the speed throughout their amazingly long and trouble-free life!

REASON—the Goodyear COMPASS Belt is the modern version of the time-proved rope drive. Within a tough protective rubberized fabric envelope, the load is carried by a layer of heavy rope-cord spiralled continuously without a splice—the weak joint in other belts! A patented Goodyear construction, it is the only truly endless belt—and the most nearly stretchless. The G.T.M.—Goodyear Technical Man—will gladly consult with your engineers in selecting the proper type COMPASS for your hardest drives. Just write Goodyear, Akron, Ohio, or Los Angeles, California—or the nearest Goodyear Mechanical Rubber Goods Distributor.

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THE GREATEST NAME IN RUBBER
GOODYEAR

CURRENT TEXTILE TOPICS ....

Talk of the Month

IT IS a hopeful New Year that has been started, so far as actual business in the cotton industry is concerned. At any rate, the year 1935 ended with a backlog of business that put mills in a position to hold for a reasonable price basis. The industry in the fall accumulated a fair share of the general pick-up of business. Mills have been cautious withal and the last month of the old year brought talk of good prospects for actual profits in 1936.

Cycles in cotton industry of unique sorts and kinds

If it were not for the persistence of extraneous disturbances, political developments, the industry would be looking ahead with full confidence. The truly salubrious situation in wool is suggestive of where cotton manufacture well might be, but for the hamstringing burdens imposed by bureaucratic forces in the government.

Last year the cotton industry started also with prospects of good business. Came the transition for all manufacture when the NRA was discredited and went by the board. Came, too, the awakening of industry through broad expansion of public buying power. But the AAA hung on like a leech, with its processing taxes, to sap the life-blood of the cotton industry.

In the spring the government found that it was time to relieve the wool trade of restrictions upon normal price making on the raw material. There followed a virtual boom which has not ended yet, with the wool industry restored to almost unprecedented activity, employment stabilized and profits for stockholders made possible. Recently the emergency was declared over.

Obviously wool and cotton are not in a parallel position, since the output of the former is below normal domestic consumption and the latter a surplus crop. Yet competent observers in the trade, on the basis of history, find it plausible to believe that in a free market for the crop, on an expanding world market, the prices might ultimately be higher than at present. The domestic market for wool is always subject to world influence and the tendency for that staple everywhere has been strong, in a normal recovery movement.

Cotton consumption beginning in October has shown good relative gains over the previous season in this country. The market for American staple abroad has shown a distinct broadening as anticipated. This has been made possible by letting the price drop reasonably through decreasing the loan rate. But a policy which aims to prolong "emergency" control for years is calculated to foster further the competitive growths of cotton abroad and prevent the return of a normal world demand for the American staple.

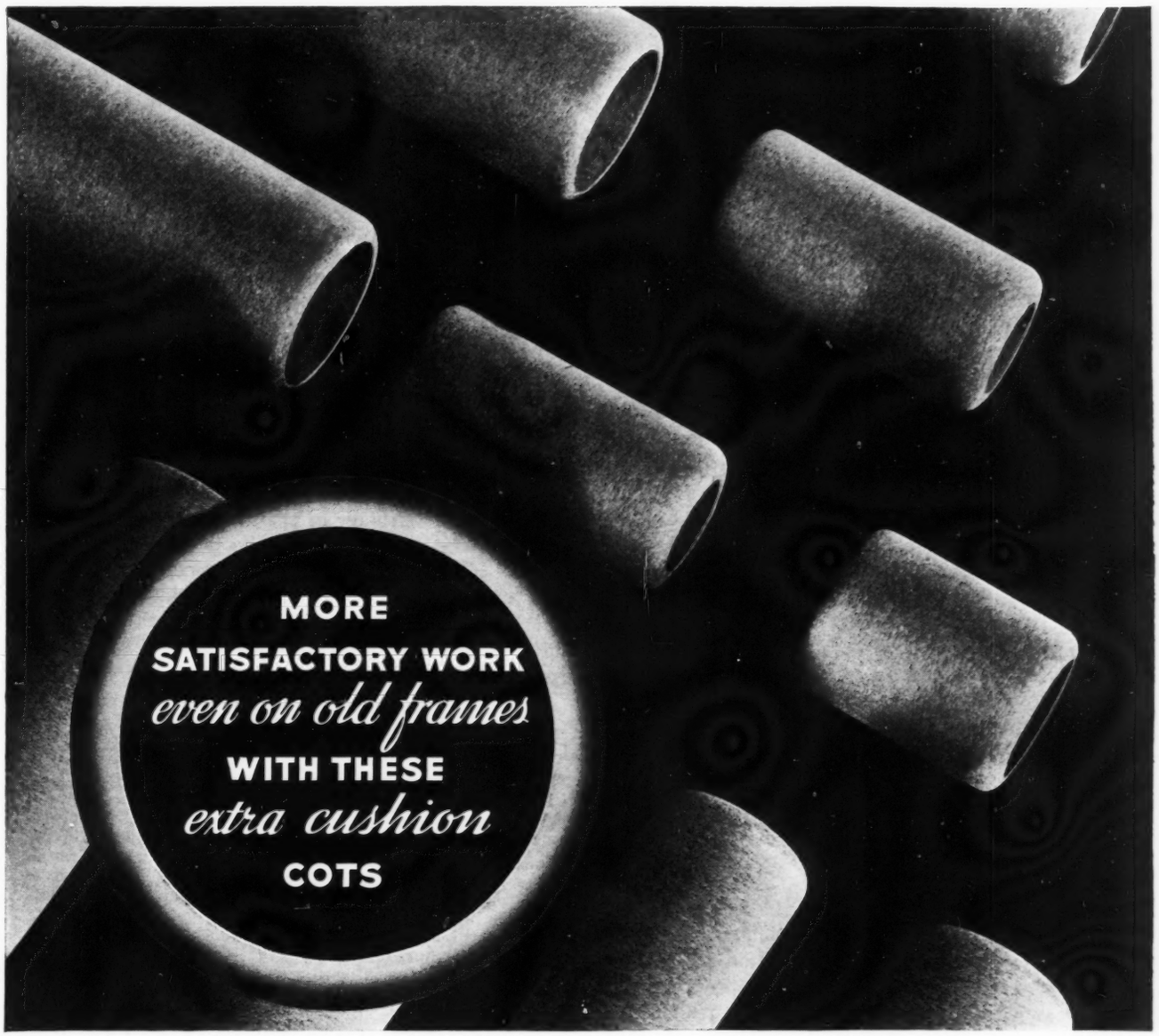
Despite the uncertainties that were created by the processing tax case and the potential effects of its disposition by the Supreme Court, the last quarter of the year brought substantial trading in cotton goods and laid a healthy foundation for the start of the current year. But the industry has other extraneous forces to confront. The Ellenbogen bill, the aims of the Federal co-ordinator for industrial co-operation, the Social Security Act are samples of cycles of unique kinds developed under the present Administration to plague and harass cotton manufacturers.

When the cotton industry refused to participate in the Berry conference on co-operation, it was moved by consideration of the unhappy final results of its experience under the NRA, first of the abnormal cycles within the trading cycles that are traditional in the business. It is well to recall, however, that the NRA was the inevitable result of unsound practices of the industry under private control of the past. Warnings of government interference were hung up before the industry by its leaders in 1932 and previously. The point is that now the cotton manufacturers must adhere to the best principles invoked under the NRA if it hopes to continue under private control.

What the Federal co-ordinator and the Administrator may be able to accomplish without the co-operation of the leading industries remains to be seen. What labor may be able to do is more of a serious question. The split in the A. F. of L. complicates the situation for the Administration. As stated by David Lawrence, "if the effect of the schism is to open wide the eyes of the people to the dangers of labor bureaucracy, it may result in legislation imposing greater and greater responsibilities on labor unions, perhaps even Federal or State incorporation." That at least would be welcome to the cotton industry.

Meantime, mill selling agents are looking ahead with confidence in good demand for many months. The best present sign is in the restored activity of the durable goods industries, so long laggard. The more distant but not far off prospect of a building boom is another distinct encouragement. Satisfactory recovery is that based on general activity and not spurts here and there. That seems to be in the making and long-range planning is among the healthy signs. Last, but not least, may be mentioned the trend toward demand for quality in products.

COTTON manufacture in New England reached the end of the year with improved operating conditions and prospects, from an actual business standpoint, as in other parts of the industry. In the late trading of 1935 they faced the general uncertainty over the processing taxes, in spite of which considerable volume for delivery into the first part of 1935 was secured by the mills and production was stepped up to a good average in important units.



MILLS having equipment, some of which is worn and has steel rolls slightly out of true, will find Armstrong's Extra Cushion Seamless Cork Cots a distinct advantage. For the *extra cushion* of these new cots—a result of Armstrong's special tubular process of manufacture—minimizes end breakage due to frame irregularities.

Nor is that all! The new Armstrong's Extra Cushion Cots offer further advantages—improved Monday morning start-ups, stronger, more uniform yarn, easier handling in changing numbers. These cots save time and money on assembling costs, too, because they have glue already applied at the factory. For samples and the complete story of Armstrong's Extra Cushion Cots, write to Armstrong Cork Products Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

ARMSTRONG'S *Extra cushion* SEAMLESS CORK COTS

FOR SPINNING AND CARD ROOM ROLLS

Early last year, as indicated in the February issue of COTTON, this district was faced with serious obstacles to cotton manufacture that threatened disastrous consequences to many communities. Public attention was aroused and, under the leadership of the New England Council, a broad movement was inaugurated to ameliorate the unfavorable aspects of the cotton industrial situation as much as possible.

Civic alarm was aroused and individual state organizations attacked a problem which was wider than the industry itself, for it arose from such matters as taxation and regulation. Corrective measures, such as could be taken by community forces, have been noted. Enough has been done to create great improvement in spots and to promote hopes for that forward and profitable trend of cotton manufacture in this district that has been so sadly lacking for many years except in momentary spurts.

New England Mill Situation

Fall River is a notable example of what a community can do to encourage industry, when it realizes that something must be done to save employment for many thousands of workers. The local tax problem has been a severe burden for mills, especially when spindles were carried along idle with a severe assessment on them. The city this fall finally took action in favor of the mills and reduced taxes for a long list of plants, with the result that these units will continue to provide support for the community through the employment of the thousands who were threatened with loss of work. Thus the industry is relieved and the community indirectly saved from new burdens.

It transpires that New Bedford, the fine goods center of the country, has quietly and unobtrusively been working out a sound program of taxation that offers an object lesson in this direction. This program was started many years ago and consists of a gradual reduction in assessments on spindles. It was figured that the assessed values in the city were practically on a par with actual book values in 1932, while the former in Fall River were 30 per cent above the latter.

In Rhode Island the casualties to the textile industry during the year 1935 were extremely heavy, coming fast in the early months, before the community interest had begun to express itself. The state is reported to have lost not far under one-third of its textile machinery, much of which was allowed to go to South America. Something new for this part of the country in recent years, however, arose late in 1935 in the granting by the town of Coventry, Rhode Island, of ten years' exemption for a textile enterprise.

As far back as the year 1929, the treasurer of the Amoskeag Manufacturing Co.—largest plant of its kind in the world—warned the city that assessments were around 40 per cent above what the property would bring. The plant stopped production several months ago, in spite of community and state efforts to ward off the closing. At the time of writing, it was noted that the city of Manchester, N. H., had promised the company consideration on its 1936 tax bill that would mean as favorable terms as given to competing mills in any State of the Union. This apparently left the re-opening of the mills dependent upon what assurances labor would give against further troubles from the workers.

Developments of the year 1935 indicate that local conditions have had a serious part in obstructing the mills of New England, aggravating the evils of the processing taxes which hampered the industry at large. Evidences that much relief may be obtained in one way and another are helpful to the outlook. Profits once more were lacking for cotton mills of the district in the past year, but good business in sight and better operating conditions should react to the benefit of many companies in 1936.

In a brief filed with the Supreme Court in the Hoosac Mills tax case, the National Association of Cotton Manufacturers reiterated the point that the cotton textile industry has never complained against farm relief, but had urged a broader tax base. Russell T. Fisher, secretary of the N. A. C. M., made the very pertinent statement that the tax has involved a levy of nearly a billion dollars on consumers of necessities. "A large part of this sum," he added, "has come from consumers of rough cotton work clothing, bread and pork products, in the selling prices of which the processing tax bulks large."

COMMENT ON THE COTTON MARKET

New Orleans, December 14, 1935.

As THE calendar year draws to a close there continues a feeling of optimism as to the future, due to the improvement in general business, especially in heavy industry and in the retail line, and hope entertained for a further expansion of trade after the holidays. Nevertheless the cotton market, in the face of a free export movement and a smaller indicated crop, tended lower the past month, with most pressure on distant deliveries, although there was an important bulge following announcement of the government's four-year cotton control plan for years of 1936 to 1939 inclusive. Because of the temporary bulge, the trade apparently assumed that the acreage next year will probably be not as large as expected, but liquidation followed, causing market to recede again.

According to recent Washington press advices the Agricultural Adjustment Administration announced that Secretary of Agriculture Henry A. Wallace has approved a new four-year cotton adjustment contract which will be offered to cotton producers to replace the contract expiring at the end of 1935.

Depressing influences, in addition to the unexpected liquidation, were a falling off in the demand for spots in the South, rumors that there may be some selling of government holdings, the decline in silver, and because of the uncertainty attending the foreign political situation and the impending Supreme Court decision on the AAA.

Of late there has been some let-up in the export movement compared with preceding weeks, but the volume of shipments keeps well ahead of last season, exports from the United States the past week amounting to 141,000 bales versus 117,000 for corresponding week last year, making the total, August 1 to December 13, 2,930,000 bales against 2,234,000 for the corresponding period last season. Likewise, compared with last season, world's spinners' takings of American continues large, for the past week 308,000 bales versus 280,000, bringing the total thus far this season up to 5,162,000 bales versus 4,762,000. It is possible, however, for the export movement to slow down somewhat after the new year owing to the less urgent demand for spots, the increased discount on distant positions, and a freer movement to market of the Indian crop. Compared with one month ago contract values show a loss of about 27 to 61 points, most on distants; middling in New Orleans is 57 points lower, and the average price of the ten Southern markets is 49 points down.

S-L-ROTH BETTER-DRAFT SPINNING

2 pays 2 ways

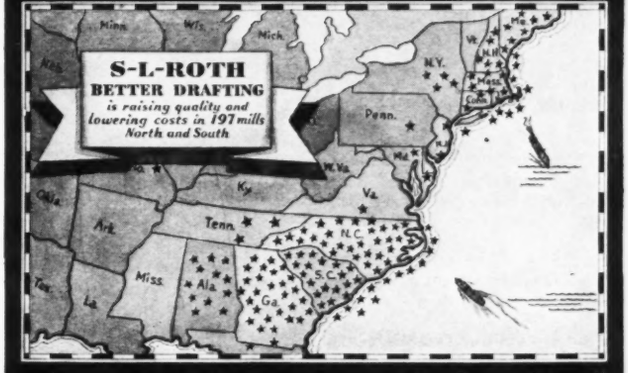
DECREASES COST OF MANUFACTURING

DEFINITELY IMPROVES QUALITY OF YARN

When S-L-Roth spinning was new, many mills were wholly satisfied to install it for the sole reason that it made satisfactory yarn at less cost. Gradually they have come to realize that it makes BETTER yarn at less cost. Only the combination of these TWO reasons could get it so widely accepted so quickly and by so many fine goods mills. Saco-Lowell Shops, Boston, Charlotte, Atlanta, Greenville.

One-sixth of the active spindles in the United States are now Saco-Lowell-Roth

1/6th of the active U.S. Spindles are now Saco-Lowell-Roth ("LONG DRAFT")



—An overwhelming preference for Saco-Lowell

GOVERNMENT'S ANNUAL CROP ESTIMATE COMPARED WITH LAST SEASON'S FINAL REPORT

	This season	Last season
Acreage in cultivation, July 1, revised	27,872,000	27,883,000
Left for harvest, acres	27,331,000	26,987,000
Abandonment	1.9%	3.2%
Estimated crop, bales of 500 lbs. gross wt.	10,734,000	9,636,000
Yield per acre, lbs.	188.0	170.9
Ginned to December 1st, running bales	9,362,348	9,019,834

SEASON'S INDICATED SUPPLY OF AMERICAN LINT COTTON

Bales—	This season	Last season
World's carry-over, Aug. 1, Plauche	8,728,000	10,598,000
Indicated crop, government estimate	10,734,000	9,636,000
World's indicated supply	19,462,000	20,234,000

BRITISH BOARD OF TRADE REPORT FOR NOVEMBER

Year—	1935	1934	1933
Exports of yarn, pounds	12,000,000	11,000,000	13,000,000
Exports of cloth, yards	158,000,000	172,000,000	170,000,000

CENSUS REPORT FOR NOVEMBER

United States— Bales—	This season	Last season
Consumption of lint, November	507,836	480,081
For four months	1,917,559	1,716,750
Mill stocks, November 30th	1,346,127	1,294,456
Stocks in public storage and warehouses, November 30th	8,629,812	9,803,690
Stocks in mills, public storage and warehouses, November 30th	9,975,939	11,098,146
Stocks in mills, public storage and warehouses, October 31st	9,556,306	10,521,297
Active spindles during November	23,193,734	25,072,392
Active spindles during October	23,192,602	25,103,884
Consumption of lint in Cotton Growing States, November	426,794	384,937
In New England States	66,815	72,545
In All Other States	14,227	22,599
In United States	507,836	480,081
In Cotton Growing States, 4 months	1,607,307	1,372,630
In New England States	253,313	267,745
In All Other States	56,939	76,375
In United States	1,917,559	1,716,750

While November consumption was smaller than for October when it was 552,187 bales, it was larger than for November of last year, but mill stocks at the end of November were much larger than they were at the close of October when they were 1,074,405, and again are now somewhat larger than they were one year ago.

AMERICAN COTTON

Bales—	This season	Last season
In Sight to Dec. 13 (marketed)	9,033,000	6,639,000
Exports from U. S., inc. Canada	2,930,000	2,234,000
Spinners takings, world	5,162,000	4,762,000
Stock at all U. S. ports, Dec. 13	2,952,000	3,115,000

WORLD'S VISIBLE SUPPLY OF COTTON, DEC. 13

Bales—	This year	Last year
American	7,375,000	7,485,000
Other Kinds	1,351,000	1,809,000
All kinds	8,726,000	9,294,000

As to the future of the market, which much will likely depend upon foreign political developments, the trade demand, offerings of foreign growths and the expected court decisions on the A.A.A., probably next month, there is the possibility, if not probability, of a scarcity of free cotton (cotton not under government control). With an indicated season's supply of American of about 19,462,000 bales, of which, it is said, about 6,000,000 bales is under government control, there would not be much available to cover the needs of stocks at the counted interior towns, at world ports and for world mill stocks in event of world consumption of American this season reaching 12,500,000 bales. It is possible, therefore, that the government may see fit eventually to release some of its holdings by selling a sizable quantity of its reserve in order to meet possible trade requirement and to stabilize the market in case of necessity until the next crop moves in volume to market. This situation comes of the indicated lint crop pointing to only 10,734,000 bales, whereas it is possible for world consumption of American to work up to 12,500,000 bales versus 11,325,000 last season. This indicates that there will probably be another big reduction in the world's carry-over of American at the close of this season. The world's carry-over of American last season was 8,728,000 bales.

What the Southern Mills Are Doing

The Finemore Underwear Corp., of New York City, manufacturers of rayon underwear, have moved their plant to Atlanta, Ga., with headquarters at 57 Forsyth St., S. W. All of the officials, including Harry Fine, president; I. Koeppel, secretary; and Ralph Fine, treasurer, are moving to Atlanta for permanent residence, as well as Simon Glasser, cutter and designer, and Joseph LaMel, foreman. Approximately 60 employees, needed to operate the plant, will be recruited locally.

Sibley Manufacturing Company, Augusta, Ga., recently installed one of the latest design "Super-Sanforizers" purchased from The Textile-Finishing Machinery Company, Providence, R. I.

Mary-Delia Cotton Mills, Thomson, Ga., has been acquired by Thomson interests and it is understood that Oberman & Company, of Jefferson City, Missouri, manufacturers of pants, cotton goods, etc., will operate the plant.

Cannon Mills Co., Kannapolis, N. C., are constructing an additional story on Mill No. 2, to allow space for storage and re-arrangement of machinery, and are also enlarging the office in the shipping department.

Plans are under way for merging the Hart and Fountain Cotton Mills, Tarboro, N. C., under one roof as a means of reducing operating costs.

The Carolina Spinning Mills, Taylorsville, N. C., have been acquired by F. C. Sherrill, of Cornelius, N. C. The mill manufactures combed yarns and will be operated by Mr. Sherrill and his son, J. H. Sherrill.

Springs Cotton Mills, Lancaster, S. C., are constructing an additional weave shed in which 700 more looms will be installed.

Mutual Thread Company, Bristol, Tenn., recently acquired by the American Thread Company, is to re-open shortly on two full shifts.

Lane Cotton Mills, New Orleans, La., the Spencer Mills, Spindale, N. C., the Cleghorn Mills, Rutherfordton, N. C., and the Amazon Cotton Mills, Thomasville, N. C., are among the mills recently installing the Borne, Scrymser process for spraying Minerol on cotton.

Fulton Bag & Cotton Mills, Atlanta, Ga., recently acquired a large one-story warehouse containing 80,000 square feet of floor space.

Expansion of the Crompton-Shenandoah Co., Waynesboro, Va., was recently announced. A new unit will be installed in a building that has been purchased.

Concord Knitting Co., Concord, N. C., is erecting a two-story addition at a cost of approximately $8,000.

Shoaf-Sink Hosiery Mills, Lexington, N. C., has purchased 75 additional modern seamless knitting machines.

Archer Hosiery Mills, Columbus, Ga., are erecting a one-story addition to their full-fashioned department, to comprise also an additional story for the office building, and making improvements in the boiler plant.

A charter has been granted the Rutherford Hosiery Mills, Belmont, N. C. The authorized capital is $100,000, and C. T. Stone, A. S. Ford and Mrs. C. T. Stone are among the incorporators.

A charter has been granted to the Currie Hosiery Mills, Inc., Carthage, N. C., with a capital of $50,000.

Catawba Hosiery Mills, Hickory, N. C., have been chartered with a capital of $100,000. It is understood 20 automatic seamless machines will be installed.

Work has begun on remodeling a building to house the new Kramer-Hollar-Brown Co., to dye and finish hosiery for the Hollar Hosiery Mills and Brown Hosiery Mills of Hickory, N. C.

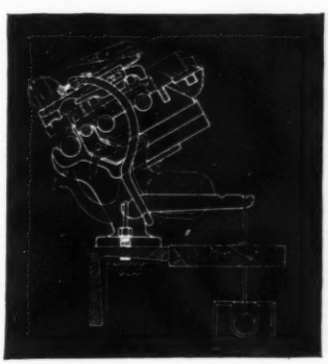
How's THIS for Performance?

25% Increase in Production . . . .
20% Increase in Breaking Strength

A well known southern cotton mill recently installed a large number of our Model B spinning frames, equipped with H & B Four-Roller Long Draft (part of the installation pictured herewith).

Mill tests of this equipment were reported to us, giving the following date and results:—

30's yarn, warp twist, 7/8" cotton • Variable speed spinning • Spindle speed:—minimum, 10,073 r.p.m.; maximum, 11,573 r.p.m. • Traveler speed:—minimum, 4558 f.p.m.; maximum, 5254 f.p.m. • increase in production—approximately 25% • Increase in breaking strength—approximately 20% • Ends down per 1,000 spindle hours—32 •



Perhaps H & B Four-Roller Long Draft will give comparable results for you. Why not investigate?

H & B AMERICAN MACHINE COMPANY
Cotton Preparatory and Spinning Machinery
PAWTUCKET, R. I.
BOSTON OFFICE, 161 Devonshire St.;
ATLANTA OFFICE:
815 Citizens & Southern National Bank Bldg.;
CHARLOTTE OFFICE:
1201-3 Johnston Bldg.

H & B FOUR ROLLER
LONG DRAFT SYSTEM

New Textile Equipment and Publications . . .

Worm Gear Reducers

Link-Belt Company, 2045 W. Hunting Park Ave., Philadelphia, Pa., have developed a new line of cut-tooth worm gear speed reducers of simple, compact, accessible construction. They are available in a wide range of ratios and capacities, with single or double reduction, and in horizontal and vertical types; all provided with precision tapered roller bearings and automatic lubrication within dust-proof gray iron housings. A 40-page illustrated catalog, No. 1524, describes these new products.

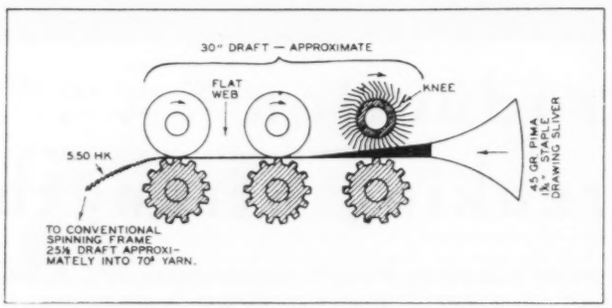
The Rooney Hi-Drafting System

Tom Rooney, 623 Robeson St., Fall River, Mass., is the inventor of a new development in drafting cotton, known as the Rooney Hi-Drafting System, which is illustrated in the accompanying sketch. This system of fiber control is applied only on card room machinery, and prepares roving in such a manner that it can be spun on the conventional spinning frame, where the only changes made are in the draft gears. The system itself consists of a patented top roller covered with card clothing, which gets its traction from the fluted roll by means of light contacts of the wire points. The fiber collars on either end rest on the shoulders of the fluted roll. The weights and saddles already on the machine are utilized.

The cotton, being drawn through the kneed wire, it is explained, is opened and laid out in a very thin flat web, the fibers lying side-by-side. The larger part of the drafting is done between the front and middle rolls, owing to the fact that each fiber is being drawn.

The creel on the fly frame is removed and a lifting roll put on in its place, and a few necessary gear changes are made. The back top roll is removed and the patented wire roll inserted. Sliver guides and trumpets are also added as shown in the sketch.

The sketch is of an actual installation where a 45-grain sliver of $1\frac{9}{16}$-inch Pima cotton was drafted 29.71 inches on a converted 8x4 slubber into a 5.50-hank roving, with a twist of .85 times the square root, and this roving was spun on a conventional spinning frame into 70s yarn, with a draft of 25.45 inches approximately. The system has been patented, Patent No. 1,933,222.


30" DRAFT — APPROXIMATE
FLAT WEB
KNEE
5.50 HK
45 GR PIMA 1⅝" STAPLE DRAWING SLIVER
TO CONVENTIONAL SPINNING FRAME 25⅝ DRAFT APPROXIMATELY INTO 70s YARN.

Sketch of the Rooney Hi-drafting system for roving frames, with kneed wire back top roll . . .

New Catalog on Johnson Bronze

Johnson Bronze Company, New Castle, Pa., have issued the 1936 edition of their general catalog of Johnson Maintenance Bronzes. It contains 40 pages in three sections, and is fully illustrated. Section 1 carries complete size and weight information on Johnson Universal completely machined bronze bars, both cored and solid. Section 2 lists over 600 sizes of general purpose bearings together with prices and quantity discounts. Section 3 deals entirely with Johnson electric motor service bearings. Each individual bearing is illustrated.

New Type Pillow Block

The SA type pillow block is a new addition to the line of SKF transmission appliances produced by SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa. Used in conjunction with this unit is the SKF spherical roller bearing. The pillow block has a split construction that provides for a minimum number of parts, and, with the spherical roller bearing, provides an inherent ability of rolling self-alignment without imposing extraneous loads due to set-up inaccuracies or shaft deflections, it is explained. It is designed with cross and transverse ribbing to assure the most strength at the least weight and minimize warping. Felt sealing rings shield the bearings against dirt, etc.

New Oil-Resisting Pneumatic Hose

A new air hose, designed especially to overcome the deteriorating effects of hot oil from air compressors, has been announced by The Republic Rubber Company, Youngstown, Ohio. The tube is made from a compound similar to that used in oil conducting hose and can actually be saturated with oil for long periods of time without affecting its serviceability, it is explained. Great strength is obtained, it is pointed out, without impairing flexibility, by constructing the plies from a specially twisted cord which is thoroughly impregnated with a new tenacious rubber compound, which also increases the bursting and working pressures, etc.

Booklet on Aktivin-S

American Aniline Products, Inc., 50 Union Square, New York City, distributors for the Aktivin Corporation, have prepared and are distributing an interesting booklet discussing "Aktivin-S as a Solubilizing Agent for Starch in Sizing and Finishing". The book reproduces a number of micro-photographs showing the action of Aktivin-S on potato starch, and describes the material and its use in starch solubilizing.

Visible Lubricators

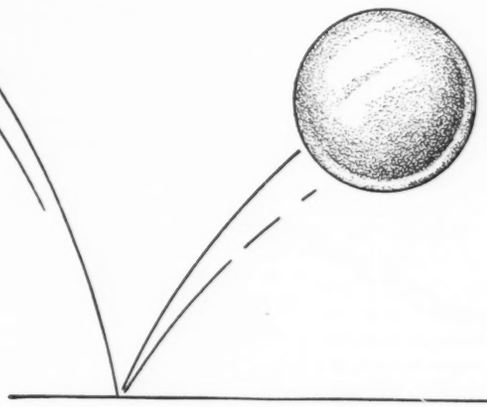
The Trico Fuse Mfg. Co., Milwaukee, Wis., have announced a new addition to their line of Opto-Matic constant level lubricators. The new model, known as the No. 3 size, is designed to greatly increase the number of applications for maintaining constant level lubrication on ring or ball bearing shafts. Simultaneously the firm is presenting a new bottle type oiler known as the "Drip-Drop" for solid, wick or waste-packed bearings. This new oiler drops oil on the bearing from the top as the bearing needs it, it is explained, and eliminates daily oiling by the hand method. It is made in three sizes, designed to fit practically all installations without drilling or tapping.

Second Edition of the Manhattan General Catalog

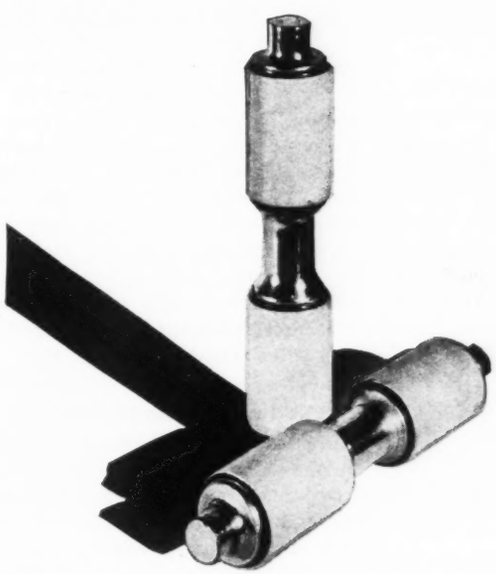
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., have printed a second edition of their general catalog, the first edition, published early in 1935, having been exhausted. The catalog is complete, covering belting, hose, packing, molded goods, friction material, rubber coverings, abrasive wheels, etc.

New bulletins of the company now available also cover Condor Compensated, the low-tension rubber belt, Condor whipcord v-belts, and whipcord endless transmission belts.

Resilience



SPINNA CALF



● The exceptionally resilient qualities of Spinna Calf have been instrumental in establishing the records it is making today for low roll replacement per 1000 spindles per 40 hour week.

A. C. LAWRENCE LEATHER CO.

Specialists in Textile Leathers

BOSTON, MASS. PEABODY, MASS. GREENVILLE, S. C.

Fabric *Quality* begins with the *Yarn*

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

"SKF Bearings and Housings for Fans and Blowers"

How SKF bearings can replace plain bearings on fans and blowers is explained in a new bulletin, "SKF Bearings and Housings for Fans and Blowers", issued by SKF Industries, Front St. & Erie Ave., Philadelphia, Pa. Types of fans, shaft diameters and other designations for 86 actual change-over jobs are given, together with a convenient form to simplify changing over to SKF adapter mountings, cup sleeve mountings, knee type boxes, fan boxes, and knee type blower boxes.

Catalog on Friction Material

The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., has issued a new catalog describing the complete line of Condor industrial friction materials. Technical descriptive data on the nine Condor types, covering every practical friction material requirement, installation charts and list prices are included as well as numerous illustrations and diagrams. This friction material, a Manhattan development, is based on compounding and bonding formulas representing years of engineering skill and research. It is suitable for use wherever mechanical power is applied intermittently with sudden stops, it is pointed out.

Nickel-Copper Alloy Steel

The new corrosion resistant nickel-copper alloy steel developed by the Youngstown Sheet & Tube Co., Youngstown, Ohio, and introduced early in 1935 as Yoloy, is available in a full line of sheets, strip, plates, pipe, bars and shapes, wire and wire products. In this new alloy, it is explained, special properties contributed individually by nickel and copper to other steels have been combined to produce strength, toughness and endurance to insure long life in the face of abusive uses.

Herringbone Gear Reducer Catalog

A new 32-page catalog, No. 1519, on single, double and triple reduction herringbone gear speed reducers for large speed ratios and heavy and shock loads has been published by Link-Belt Company, 2045 West Hunting Park Avenue, Philadelphia, Pa. The book stresses the company's RC double-reduction reducer, which is made up of a herringbone-gear first reduction unit, and a finished-steel roller chain drive for the second reduction. Another feature of the book is that it rates all reducers on the basis of the recently recommended practice of the American Gear Manufacturers Association, the company having re-rated its entire line to so conform.

Roberts Returns to Detroit Graphite

E. C. Roberts has become vice-president in charge of sales of Detroit Graphite Company, Detroit, Mich., according to announcement of Thurlow J. Campbell, president. Mr. Roberts is well known throughout the industry for his intimate knowledge of the industrial markets for paints and finishes in which field the company deals exclusively. He was associated with Detroit Graphite Company for 16 years prior to May, 1933, when he resigned as vice-president in charge of sales and became associated with Arco Company at Cleveland in a similar capacity.

A large group of former Detroit Graphite salesmen who have had years of technical sales experience in their respective territories have also rejoined the company, it is announced. Plans for 1936 include added appropriation for advertising and sales development.

Cotton Testing Equipment

American Instrument Company, Inc., 8010 Georgia Avenue, Silver Spring, Maryland, has developed a wrapping machine and special tensile jaws, for testing cotton by the Chandler bundle method, which are described in Bulletin 310 just issued by the company. This method was recently adopted as a tentative standard by the American Society for Testing Materials. The bulletin also describes the Flexometer for testing flexural properties of fabrics, the Air Permeameter for testing permeability to air, and the Compressometer for determining the compressibility and compressional resilience of pile and other fabrics.

Acme Steel's New York Office Moved

The New York office of Acme Steel Company of Chicago has been removed to 103 Park Avenue, New York City. The Acme warehouses will be maintained in the old location in Bush Terminal, Brooklyn.

Bulletin on Nickel-Clad Steel

A new publication of 24 pages descriptive of Lukens Nickel-Clad steel has been issued by Lukens Steel Company, Coatesville, Pa. This material is a bi-metal (or clad metal) consisting of a light layer of pure, solid nickel permanently bonded to a heavier layer of steel. The book describes the properties of the material and contains a list and illustrations of a number of applications of the product, including several textile uses.

New Time Recorder

Stromberg Electric Company, 223 West Erie St., Chicago, Ill., have developed a new electric time recorder which may be operated by one hand. It is compact (less than one-fourth the size of former models) is equipped with a Telechron motor and can be plugged into an electric light socket or used with a control clock. It takes full-size standard time cards and prints time records on the front of the card when it is dropped in the funnel face outward.

New Republic Steel Representative

Robert J. Working has been appointed district sales manager for Republic Steel Corporation of Youngstown, Ohio, in the Birmingham, Ala., territory, succeeding Kenneth D. Mann, who has become executive vice-president of Truscon Steel Company. Mr. Working had been with the United Alloy Steel Company and the Central Alloy Steel Corporation, and following the Republic merger in 1930 he was made assistant district sales manager in the Cincinnati territory, being named district sales manager there in 1934.

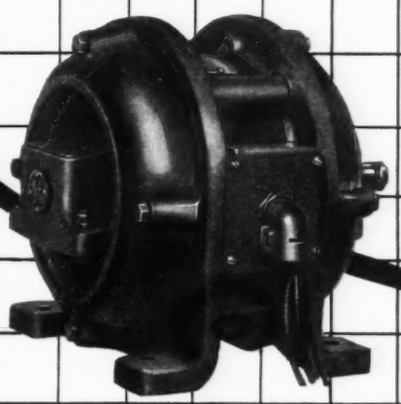
"Properties of Toncan Iron"

Republic Steel Company, Massilon, Ohio, recently issued a 12-page folder "Properties of Toncan Iron", containing a large fund of condensed, up-to-date information on rust-resisting Toncan copper molybdenum iron. Two sections give complete physical properties and physical constants of this alloy iron.

Cordage, Twine and Duck Directory

Davison Publishing Company, 50 Union Square, New York City, have issued the 28th edition of their directory of the cordage, twine and duck trades, giving details of all plants manufacturing these products and allied lines. It covers manufacturers of awnings, tents and sails, and cordage, woodenware and hardware jobbers, ship chandlers and kindred lines. The price is $3.00 per copy.

Why you can REDUCE WEAVING COSTS WITH THIS LOOM MOTOR



When you install G-E totally enclosed loom motors in your mill, you profit by lower over-all weaving costs because, electrically and mechanically, these motors are designed specifically for loom service. They have high efficiency and power-factor. Ample capacity provides for peak loads and for the breaking-in period and assures cool operation of the motor under normal conditions. As the motor is *totally enclosed*, no dust or lint can enter it. There is no objectionable air discharge near the warp. For further information, address General Electric, Schenectady, N. Y.

CHECK THESE DESIGN FEATURES

They give you exceptional performance, long motor life, and low maintenance

One-piece end shields lower expense of inspecting windings.

Removal permits full inspection of windings without disturbing motor mounting.

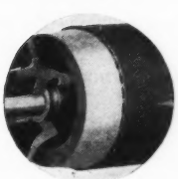
Accurately machined for concentric location of rotor.

Vibration-resisting stator keeps winding-repair costs low.

Laminations and frame securely clamped and riveted—cannot shift.

Rigid end frames assure permanent alignment.

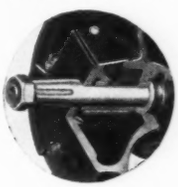
Stator-grounding lead provided.



Cast-aluminum rotor reduces rotor service costs.

No joints, no fans—nothing to work loose.

Rotor pressed and keyed on shaft for high mechanical strength.



Waste-packed bearings, accessible from outside, reduce servicing costs.

Large window for proper waste contact on top of shaft.

Removal of end shield unnecessary for examination of waste packing.

Lubricating system assures long service and low maintenance.

Twin filling holes allow oiling from either side of motor.

Easy to check oil level.

Filling holes—fitted with screw plugs—located so oil cannot overflow into motor.

Drain plug makes flushing and cleaning easy.

Sturdy pedestal-mounted control switch gives long, trouble-free service.

Heavy construction of contacts and moving parts assures long life.

Easily reset overload protection reduces maintenance and time loss.

020-228

GENERAL ELECTRIC

PERSONAL NOTES
about Men You Know

R. A. BUTLER has resigned as technical superintendent of the Martha Mills, The B. F. Goodrich Company, Thomaston, Ga., to accept a position as manufacturing engineer with the Carolina Cotton & Woolen Mills, Spray, North Carolina. G. C. TRUSLOW is general superintendent of the plants of the company.

W. M. YOW, formerly connected with Martha Mills, and for the past several years in the laboratory of the Goodrich company at Akron, Ohio, has succeeded Mr. Butler as technical superintendent at Martha Mills.

CLAUDE WILLIAMS has been transferred from assistant superintendent of the Fieldale, Va., towel mill of Carolina Cotton & Woolen Mills, to the superintendency of the Nantucket sheeting mill of the same company at Spray, North Carolina.

J. C. FARMER, of Roanoke Rapids, N. C., has succeeded Mr. Williams as assistant superintendent at the Fieldale plant.

ANDREW J. KELLY, chief chemist of the Burkart-Schier Chemical Company, Chattanooga, Tenn., and an occasional contributor to COTTON, was recently elevated to the position of president of the Chattanooga Engineers' Club. Mr. Kelly is a member of the research committee of the American Association of Textile Chemists and Colorists, and in 1932 was secretary of the association's South Central Section.

D. O. CARPENTER has been promoted from assistant manager to manager of the Oakland plant of Kendall Mills, Newberry, S. C. He succeeds BEN A. KNOWLTON, who has been assigned to special duties for the company with headquarters at the main office at Paw Creek, N. C.

MURRAY N. BULFORD has become general manager of the bleachery of the Clearwater Manufacturing Company, Clearwater, S. C. J. F. FOLEY, superintendent at Clearwater, recently resigned. Mr. Bulford has been agent of the Pontiac finishing plant of B. B. & R. Knight, Inc., Pontiac, R. I.

E. W. LAWRENCE, southern manager of Norma-Hoffmann Corp., bearing manufacturers, recently moved from Charlotte to Atlanta, with headquarters at 632 East Lake Drive.

S. L. MAVITY recently was promoted to the position of superintendent of the Richmond Hosiery Mills, Rossville, Ga.

ELMER SCOTT, formerly cloth room overseer at the No. 2 Mill of Georgia-Kincaid Mills, Griffin, Ga., has been transferred to a similar position at the No. 1 Mill succeeding WILLIAM DAVIS, resigned.

WAITE C. HAMRICK, JR., has been elected president of the Hamrick group of mills succeeding his father, the late DR. W. C. HAMRICK, SR. The mills include the Limestone, Hamrick, Alma and Musgrove plants at Gaffney, S. C., and the Broad River Mills, at Blacksburg, S. C.

A photograph made several months ago of the operating staff of Martha Mills, Thomaston, Ga., showing (left to right), R. A. Butler, technical superintendent; J. C. Edwards, general superintendent, and S. W. Hempstead, staff superintendent. Mr. Butler (see note above) has just become connected with the Carolina Cotton & Woolen Mills, Spray, N. C. (The copy of COTTON on Mr. Edwards' desk was there when we arrived, unannounced, with the photographer.—The Editor.) . . . . . .

Obituary

A. W. BUTTERWORTH, president for the past eight years of H. W. Butterworth & Sons Company, Philadelphia, Pa., passed away at his home in Langhorne, Pa., on Wednesday, December 18. Interment was on Friday, December 20. Mr. Butterworth had been identified with the company of which he was president for 50 years. He succeeded his brother, H. W. BUTTERWORTH, SR., who in 1928 became chairman of the board of directors. Mr. Butterworth was 67 years of age at the time of his death. He is survived by his son, J. EBERT BUTTERWORTH, who is vice-president and treasurer of the company; two brothers, HARRY W. BUTTERWORTH, SR., and J. WARNER BUTTERWORTH, and one sister, MISS ELIZABETH BUTTERWORTH.

W. R. TATTERSALL, 59, widely known mill superintendent who retired from active work some time ago, passed away at his Charlotte, N. C., home on December 21. His last position was with the Eagle & Phenix Mills, Columbus, Ga.

J. R. MANLEY, for several years superintendent of Anderson (S. C.) Cotton Mills, died suddenly on December 17 of a cerebral hemmorrhage. He was 63 years of age.

CHARLES H. MURRAY, secretary of the Highland Mills, Griffin, Ga., fell dead on December 1 while playing golf on the Griffin Country Club course. He had formerly been connected with the Georgia-Kincaid Mills of Griffin. He is survived by his wife, the former MISS BESSIE BRAWNER of Griffin.

THOMAS MUNGALL, 73 years of age, a member of the famous Mungall family, and for 31 years overseer of the dyeing department at the Pell City plant of Avondale Mills, Pell City, Ala., died recently at his home in Pell City. Mr. Mungall was a native of Scotland, coming to America at 21 years of age to work for his father, who was in charge of dyeing at Amoskeag Mfg. Company, Amoskeag, N. H. In 1903 Mr. Mungall moved to Pell City, and retired about a year ago, his son, GORDON MUNGALL, succeeding him. Other sons are A. W. MUNGALL, overseer of dyeing at Pepperell Mfg. Company, Lindale, Ga., and JOHN MUNGALL, who is connected with the dyeing department of Avondale Mills, Sylacauga, Ala.

SANFORD H. DUNSON, former mayor of LaGrange, and a director of the Dunson Mills, LaGrange, passed away recently at his home near LaGrange.

BARBER-COLMAN

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS

In southern cotton mills, **ACCURATE INFORMATION** shows that the **BARBER-COLMAN** system supplies warps to **THREE TIMES** as many looms as **ALL OTHER** improved spooling and warping systems.

36% are still serviced by old-style spoolers and warpers.

Less than **16%** receive warps from **ALL OTHER** improved spooling and warping systems.

OVER 48% of all looms in southern cotton mills are supplied with warps from **BARBER-COLMAN SPOOLERS and WARPERS**

Ask for a copy of our **LIST of USERS** and note the outstanding manufacturers using Barber-Colman machines.

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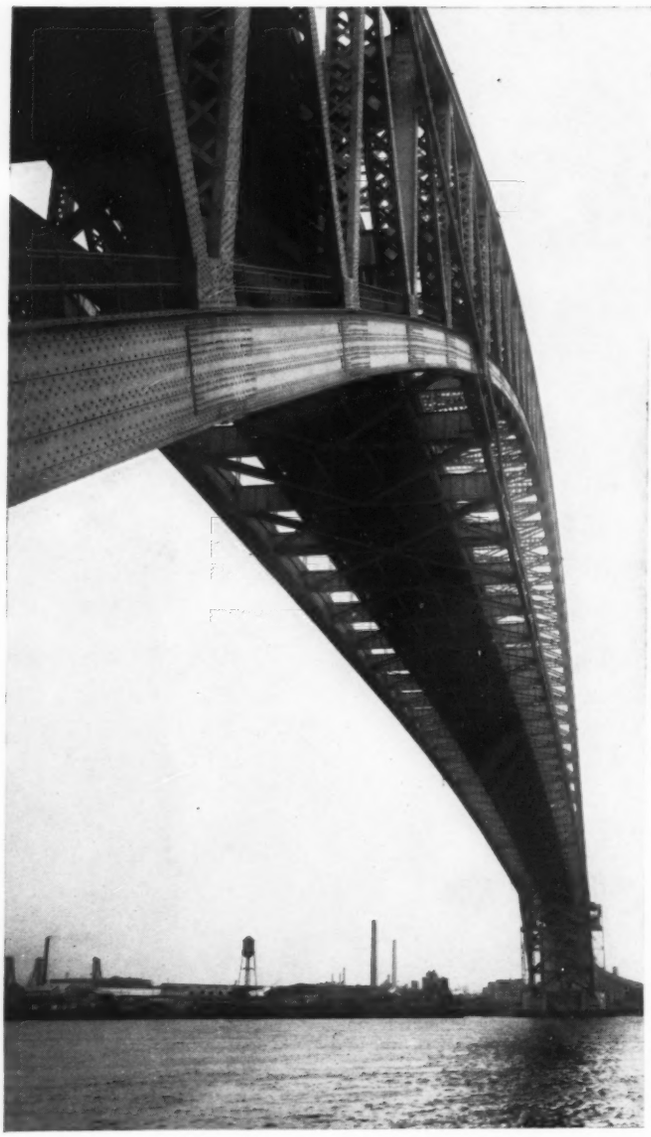
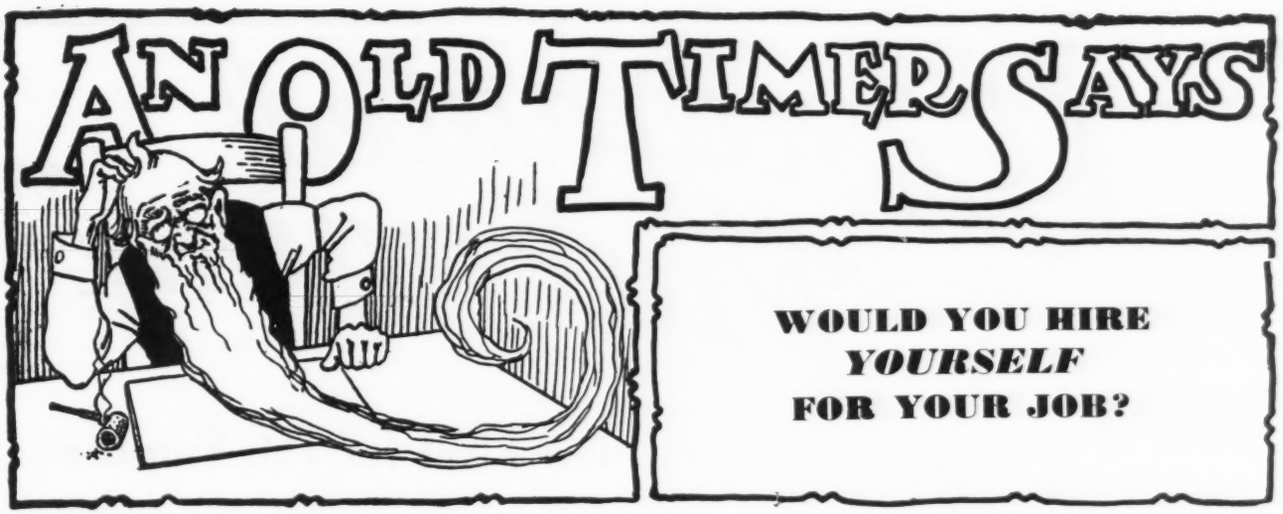


ESSENTIAL COORDINATION.....

That engineering marvel, the steel arch span bridge, relies on coordination of each component part to perform its function dependably. No mechanism can function minus this essential coordination. No industry can function without perfect coordination of its essential elements.

During its 37 years Sonoco Products Company has built for itself an integral part in the textile industry—a part requiring essential coordination in the functions of its products—a part Sonoco has qualified for by its dependable record over 37 years of progressive development.



It Is So Easy to Run a Cotton Mill!

THE above statement will not only sound absurd to the average overseer or superintendent, but most of them will say that it is just downright foolishness.

However, I claim that it is more of a statement of fact than the average superintendent or overseer thinks. One of the first thoughts which usually comes to the average man when he is promoted to overseer or superintendent is that he has something *"big"* to do, when, as a matter of fact, the upkeep of machinery is so simple, it is strange that most of us do not realize it.

I will admit that the matter of getting your orders carried out is not so simple a matter, and thus resolves itself around your method of management, but if a man will only stop to reason and put himself in the other fellow's shoes, so to speak, the problem of getting your orders or instructions carried out is not so complicated after all.

Twenty years ago a man was promoted to overseer usually because he was either a more expert card grinder or a more expert spinner or a more expert loom man than anyone else in the mill. The problem of the management of help was not so complicated as it is today. However, in looking back now over those days, all of us old-timers can realize how much we failed to accomplish by not giving more thought to the management of help at that time.

Most of the overseers' effort then was concentrated on the upkeep of machinery rather than the arrangement of the operatives. The management of the help was a secondary consideration. We have long ago found out that the management of help is more important than the management of machinery.

For example, if I were to hire an overseer for a room, whether for carding, spinning or weaving, I would prefer a man who was a good manager of help rather than a man who was an expert in the machinery line.

How to get along with the other fellow: This is one of the most important problems with which an overseer or a superintendent must cope. If we do not have imagination enough to realize that the operatives are human beings, with the same desires, the same prejudices, the same superstitions and the same minds in general that we have, then we are handicapped in our methods of getting those people to co-operate with us in carrying out the instructions or orders which we give.

Every overseer and superintendent should have a sincere and sympathetic interest in the lives of his operatives, if he ever expects to obtain the maximum of loyalty, and many overseers and superintendents are now beginning to recognize these important facts.

To get back to the statement which is used for the title of this article:

"It Is So Easy to Run a Cotton Mill."

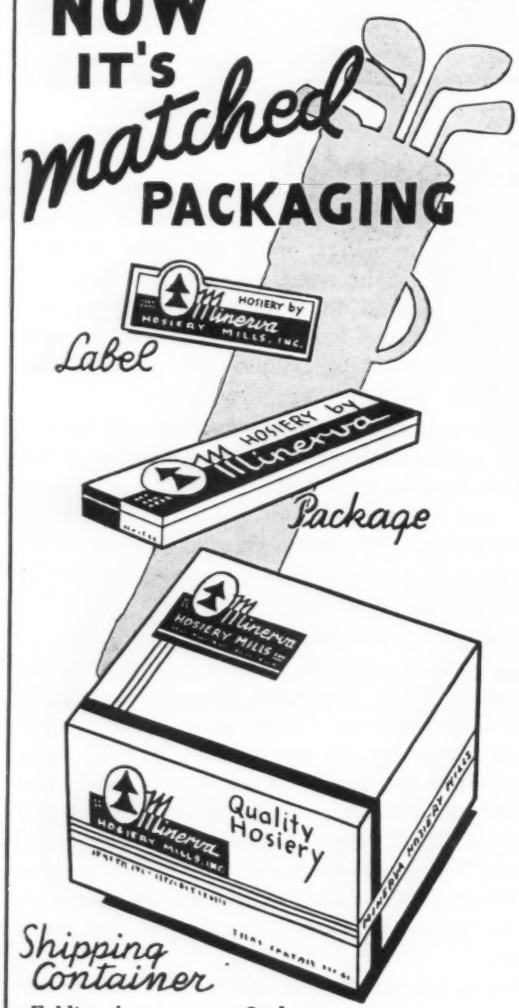
This is meant to apply also to the operation of all the departments. The statement was made primarily to apply to machinery and I know of no better way of driving this thought home to you than to ask you to read, if you have not already read, and to re-read if you have already read, the series of articles entitled "The Story of OLD-TIMER'S Methods of Working and Management." Let me repeat that this series of articles was based on an actual experience of 25 years. There is no fiction in any of the points that were brought out.

The finding of the system was really a "happen-so." That is, it was not formulated in my mind before being put in use. OLD-TIMER was on a section and soon found out that he knew nothing about fixing looms. He could go to a loom that was out of fix and make it run, but when it came to the problem of making it *stay fixed* for a reasonable length of time, he soon found out that he could not accomplish this feat nor could he find anyone else who could show him how to do it. The system as explained in that series of articles grew from that thought.

Here is the statement that I realize it will be hard for the average overseer and superintendent to believe but I claim that it is entirely possible. This statement is: I can take most any intelligent section man who has fairly good judgment and has some

"Co-ordinated Packaging"

NOW IT'S matched PACKAGING



Folding boxes — Seals
Setup boxes — Window displays
Cartons — Labels
Counter displays — Bands
Shipping containers

For the textile, confectionery, drug, bakery, food, and general trade.

A New Plant for This Purpose

A mammoth, new, modern, plant has been established at Charlotte, N. C., to serve our trade better in this section, and also to carry out our plan of "CO-ORDINATED PACKAGING". By this, we mean complete packaging of a product—labels, seals or bands, boxes, counter displays, shipping containers, etc., all of the same style in design and color. You will therefore have "matched" packaging just as you may have matched golf clubs—it will aid in the game of selling, materially increasing sales and more effectively advertising your goods. At the same time you will be economizing by saving in art work, engravings, printing, etc. Consider *the ensemble idea* for your packaging—the new and big sales smash!

Our New Factory at Charlotte—

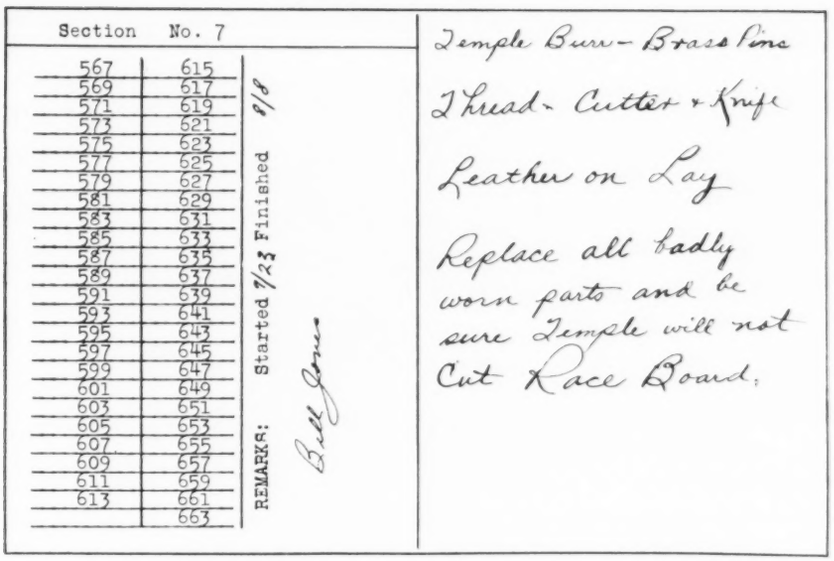
This new plant at Charlotte is now the largest single unit in the entire Southeast, manufacturing different types of boxes. It occupies 30 acres of ground with 240,000 square feet of floor space and has the most modern of new machinery and equipment for the manufacture of corrugated materials and shipping containers, setup and folding boxes, and virtually every type of package. 300 workers are employed and the products of this plant will be distributed over the Southeastern states. A complete Art Department is maintained to create individual designs for cartons and boxes, and to suggest how your packaging may be CO-ORDINATED.

LET US DESIGN AN ENSEMBLE FOR YOU

Without cost or obligation, we'll gladly demonstrate how your products may be emphasized and made more saleable by our "CO-ORDINATED PACKAGING". May a representative call to study your needs?

Old Dominion Box Co., Inc.
LYNCHBURG, VIRGINIA
WINSTON-SALEM, N. C. — BURLINGTON, N. C. — ASHEBORO, N. C.
PULASKI, VA. — CHARLOTTE, N. C.

Old Dominion Paper Boxes



Section No. 7

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REMARKS: Started 7/23 Finished 8/8

Bill Jones

Temple Burr - Brass Pins

Thread - Cutter + Knife

Leather on Lay

Replace all badly worn parts and be sure Temple will not Cut Race Board.

The card used by the section man on odd-numbered looms

graded school education, put him in charge of a room, but if he will follow the system as outlined in the series of articles mentioned, he will become a successful overseer and in my honest opinion he will be outstanding enough to where in a reasonable length of time, he will be promoted to superintendent.

You as an overseer of weaving or as a superintendent of a mill: will you answer these questions as a check-up on your personal work?

Have you a record of each and every loom in your mill which shows the number of pickers each loom used per year or month; the number of picker sticks, the number of shuttles, the number of jack straps, the number of harness straps, heel bolts, crank shaft bolts and the other important supplies that the looms use per month or year?

Do you as the overseer of that room or as the superintendent of the mill take that report and study it to see which looms are using double the amount of supplies other looms are using, and then do you have a system whereby that particular loom which is using an excessive amount of supplies get your personal attention?

Of course, you have your records which show the production of each weaver, but can you conscientiously say that you spend even one hour per week studying that report, and do you personally go into that room and talk not only to the weaver whose production is *under* your average percentage, but also talk to the weaver whose production is *over* your average percentage, or do you ignore the weavers who are getting over average production by thinking that there is nothing to talk to them about?

Do you as an overseer of spinning or as a superintendent know the frames which have the most ends down in your spinning room? If you have band-driven spindles do you realize that probably 75 per cent of the ends down on a spinning frame occur on 25 per cent of the spindles and that these are usually caused by slack bands? (Not enough twist.)

Have you any system by which you can detect slack bands? Why don't you take one spinning frame, cut off all of the bands and tie on new bands and then take out a tooth of twist and see if that frame does not run even better than the other frames which have one or more teeth of twist than his frame has?

This should be a convincing demonstration for slack bands.

Why not give the spinner a piece of chalk and let her make a mark on the guide-board each time an end comes down? My prediction is that in a half a day there will be some places on the guide-board where she will not have room to put more chalk marks.

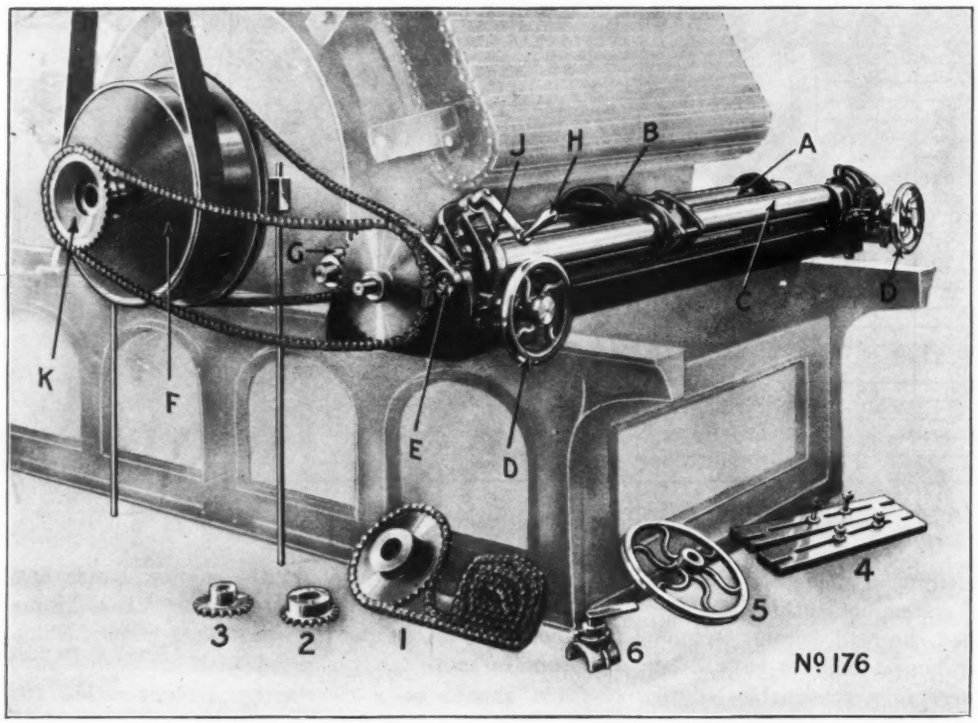
Are you doing anything about this kind of a condition in your room? It is a strange fact that all you overseers and superintendents know these things but are not doing anything about them. It is these small details which will bring up the production of any room or any mill, as a whole, and if the overseers and superintendents have a perfected system which is not complicated but which is fool-proof inasmuch as it will keep on working when you are not looking after it personally, then you will be simplifying the management of your room or mill.

That, I claim, is one of the most important items in any overseer's or superintendent's management, viz: to inaugurate a system for all of the things that you wish to have done so that those systems will *continue* to operate or to function during the time that you cannot give them your personal attention.

It has been my experience that most overseers and superintendents lay out too much work for section men when they wish to have anything done.

I am reproducing here two cards for a section in a weave room. You will notice that these cards carry the individual loom numbers. The card (shown above), for a fixer on the first shift, carries the odd numbers and the card for the second shift (shown on page 79) carries the even numbers.

You will also notice the card is made to fold in the middle and the right-hand side of the card is left blank. On the blank side the overseer writes down the instructions for *one* job that he wishes the section man to do. In this particular case it was the



Dronsfield's Patent
Portable Auto-feed

"NEEDLE-POINT" GRINDER No. 176

For revitalising the worn clothing of the

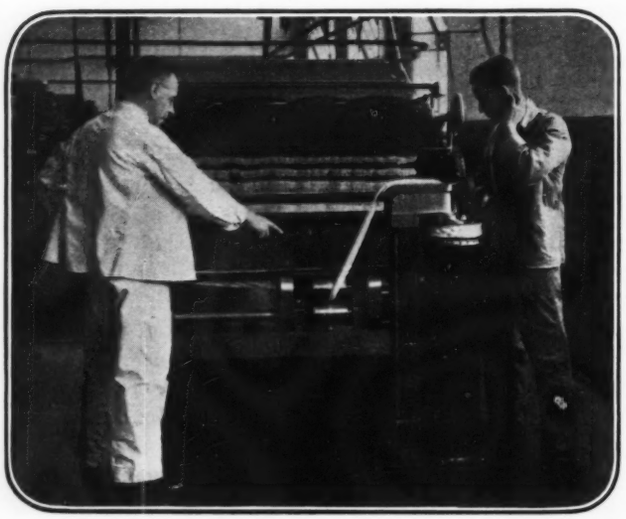
CYLINDERS & DOFFERS
of
REV: FLAT CARDS

Another Dronsfield invention of primary importance

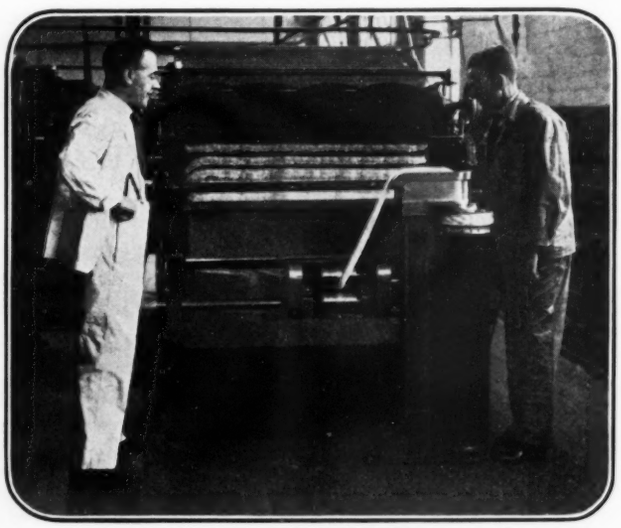
Cylinders and Doffers of which the wire has worn blunt and remains pointless even after repeated surface grinding can now be re-needle-pointed and made as good as, or better than, new, as far as points are concerned. Grinding is effected on the Card Makers principle, but is also automatic.

AUTOMATIC - - - - SPEEDY - - - - SIMPLE TO USE
CARDING INSTANTLY IMPROVED. SAVES CARD CLOTHING

The reports of the users of this new machine are wonderful; satisfaction all round. Only placed on the market three years ago and already in use in every cotton manufacturing country of the world.



Before "Needle-Pointing"; dirty ragged Sliver.



After "Needle-Pointing"—Satisfaction.

For further particulars write to Dronsfield's Agents:

JOHN HETHERINGTON & SONS, Inc.
250 Devonshire Street, Boston, Mass.

Section No. 7

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REMARKS: Started 7/23 Finished 8/13

John Smith

Temple Butt - Brass Pins

Thread - Cutter & Knife

Leather on Lay.

Replace all badly worn parts and be sure Temple will not cut Race-Board

The section man checks the even-numbered looms with this card

inspection of the temples. Please note that he did not ask the fixer to do *anything* except the work on the temples. He did not lay out four or five jobs for the fixer to do, but merely gave him this card with the number of each loom on the card. He put the date down when he gave the card to the fixer, telling him that every time he tied on a warp for him to do this work on the temples, then check off that loom number; also when he would go to a flag after doing the work the flag called for, then look over the temples on that loom as per instructions and check off the number of that loom.

If he has any spare time, he should work on the temples until all of the numbers are checked off.

Please note that he did not tell the loom fixer that these temples must be gone over within a certain length of time. He merely left it up to the fixer and in most cases you will find that the section man will turn these cards in within a reasonable length of time. If they do not, then the overseer, section man or head fixer, as the case may be, can drop around to this section man who has not turned in the cards and inquire how he is getting along with the work on his temples.

When the cards are turned in by the section man, the date is entered when they are turned in. The cards are then filed away, and make a permanent record for the overseer who can tell at any time by referring to his cards just when any of the items on his looms have had attention.

For example, he can refer to his cards and know just when his harness cams were examined, to see if they were all set the way the overseer had instructed that they should be set. Some fixers, you know, will move harness cams for various reasons and I dare say that that there are not many weave rooms that are running today where the harness cams have not been examined in years to see if they are set the proper distance from the fell of the cloth with the harness level, that the overseer had instructed they should be set; with the result that many looms are making rough-faced cloth, others bad selvages, etc.

This card is of course intended to cover every item of loom fixing on the looms. As stated, the overseer by referring to his card can tell exactly, for example, when his pitman arms were tightened, when his rocker shafts were turned, or any other item of fixing about which he wants information.

Let me repeat that this system is so simple there is no reason in the world why it should not be enforced in every room, and a like system instituted in the spinning and card rooms. For example, the carding overseer in this mill can refer to his cards and tell you exactly when the stop motions on his drawing have had attention. He can also tell you the date when his picker beaters were sharpened or any other item pertaining to the upkeep of machinery.

With these few simple illustrations I believe you are now in a more receptive mood to agree with the statement made in the title of this article:

It Is So Easy to Run a Cotton Mill.

Old-Timer Short Shots

Look out! Here comes a hot one: There are not two per cent of the overseers and superintendents in all the mills of the United States who have not wasted enough time in ten years to have a diploma from any college in the country. Hold on, now, don't say I am a fool before you give the matter some thought.

There are ten good jobs where there is one good man.

It is easier to get day labor at $1.50 *to* $200 *per day than to get experienced men at* $4.00 *to* $4.50 *per day.*

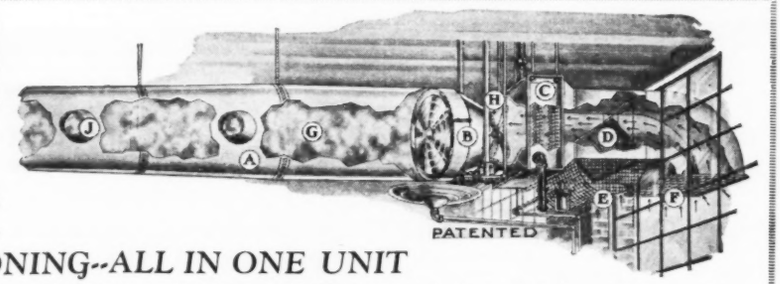
There are more $35.00 *overseers than there are* $60.00 *ones.*

There are more $5,000.00 *superintendents than there are of the* $10,000.00 *variety. Does not this prove the foregoing statement—that there are more good jobs than good men to fill them*M

Prepare yourself for a better job and it will just as surely come as death and taxes.

Success follows knowledge. I have never seen the human being yet who was smart enough to turn that statement around, in actual practice.

BAHNSON HUMIDUCT



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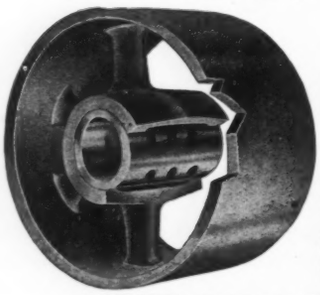

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Builders of world-known textile machinery have standardized on them for over 15 years.
We have made broad claims for the mechanical perfection of Moccasin Bushings and have yet to report our first failure.
They require the oiler's attention but a few times a year. They insure every drop of oil reaching the desired spot—the bearing. Nothing but clean oil can reach the bearing surfaces.
And finally—
Moccasin Bushings are *guaranteed* to give the fullest satisfaction in your most *troublesome bearings.*
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QUALITY SERVICE

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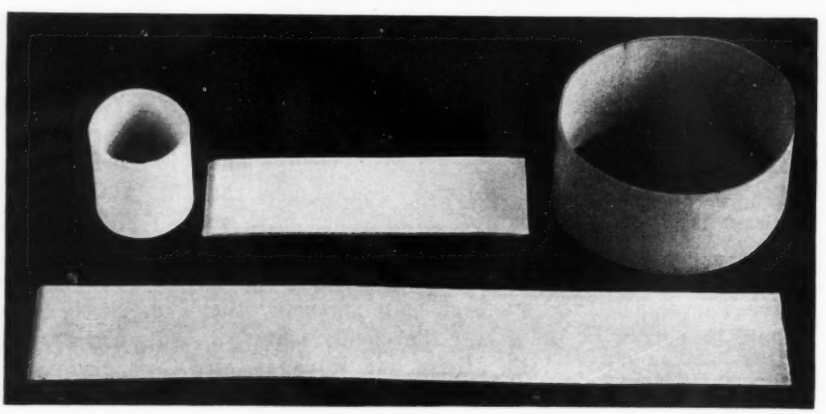
WE are equipped to furnish long draft aprons for all purposes. Workmanship and materials guaranteed. Send us samples of your aprons and we shall be pleased to quote you prices.



HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

TWIST IN YARN--an Interesting Angle on an Old Subject

EDITOR COTTON:

I have read with interest several articles in COTTON on cotton yarn twist, theoretical and actual. I do not believe that I have seen an article on what seems to me to be the most important point in comparing theoretical and actual twists.

The spinning machinery catalogs give tables for use by the spinner in determining the proper twist gear to use for the different yarn numbers. This usually is given as a twist constant, which is a number to be divided by the turns of twist desired in order to get the twist gear needed.

This twist constant does not make any allowance for the contraction of the yarn in twisting. It is based on the number of revolutions of the spindle to one inch of yarn, or roving, *delivered from the front roll.* The point which I should like to bring up, and which seems to me to be very important, is that the number of inches or yards delivered by the front roll is not the number of inches or yards wound on the bobbin, so that the actual number of turns of twist in the yarn as wound on the bobbin is not the same as figured for the length of yarn delivered by the front roll.

We all know that yarn contracts in twisting. The Lowell Textile Institute made some tests recently to determine just how much contraction there was for different yarn numbers and twist multipliers. The interesting point determined was that the percentage of contraction is independent of the yarn number, but varies according to the twist multiplier. The results were drawn up in the form of a chart shown here as Fig. 1.

It is evident that if the twist to be put into the yarn is figured on the number of revolutions of the spindle to one inch of yarn, or roving, as delivered from the front roll, the actual twist in the yarn *on the bobbin* will be greater than figured for, because the one inch of yarn delivered by the front roll has been contracted by the twist in the yarn. For instance, if the contraction is 7 per cent, the one inch of yarn from the front roll has been contracted down to .93-inch when it is wound on the bobbin. If it was figured to get, say, 21 turns of twist per inch, these 21 turns are put into .93-inch instead of one inch. The actual turns of twist are therefore $21 \div .93 = 22.58$ turns.

The contraction of the yarn due to twist is always taken into account in figuring the draft gear to be used for a given count from given roving, but as a rule there is no correction made in figuring the twist gear. The twist gear is generally determined by sim-

WE PRESENT this discussion of actual twist versus theoretical twist in spinning for the thought and study of our readers, and especially invite further discussion on the subject. The article does not presume to reveal any sensationally new theories, but rather endeavors to raise a question concerning a condition which you may or may not have discovered. Its primary object is to draw out further opinions and experiences, and we urge anyone interested to submit his thoughts on the matter, and promise to keep all identities confidential. —The Editor.

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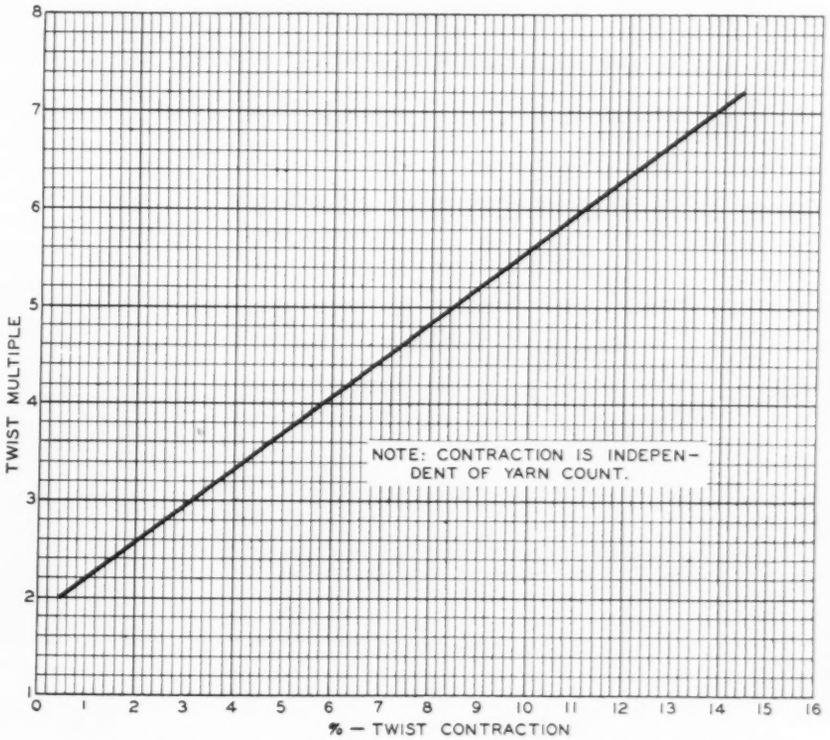

Fig. 1. Twist contraction table, prepared by Lowell Textile Institute

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for Steam Users

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If you use steam you need Morehead because it:

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- Lowers plant maintenance costs and protects boilers by positive deaeration.
- Insures substantial fuel saving.

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Three Years To Pay

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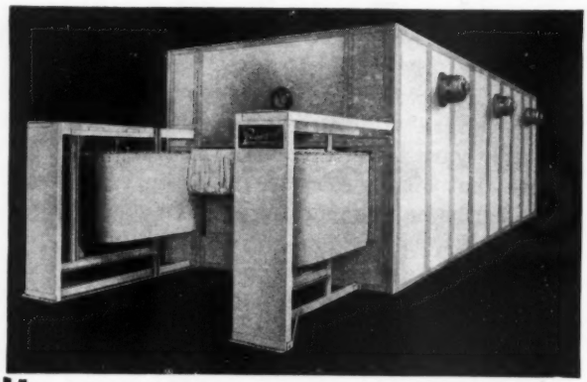

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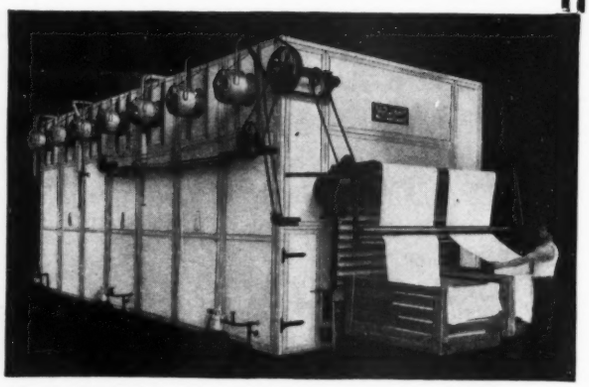

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ply dividing the constant by the number of turns desired, but in comparatively few mills is the constant corrected to allow for the contraction due to twist. Very few mills make single yarn twist tests of their yarn. Some have done this and have been surprised to find that they were putting considerably more twist in their yarn than they had figured for. In those mills the twist gear was changed to get the proper amount of actual twist, with the result that the front roll speed was increased, with the same spindle speed, production therefore increased, and less trouble was encountered in following processes due to kinks.

Possibly an example worked out for a typical spinning frame will serve to illustrate the amount of actual twist put into the yarn as compared to the figured twist.

Let us assume that we are to spin 20s warp yarn with a twist multiple of 4.75 on a frame with the following specifications:

	Diameter of front roll	=	1"
	Diameter of cylinder	=	8"
	Diameter of whirl	=	1 3/8"
(R)	Ratio whirl to cylinder	=	7.3
(F)	Front roll gear	=	100 teeth
(S)	Stud gear	=	132 teeth
(C)	Cylinder gear	=	26 teeth
(T)	Twist change gear	=	?
(D)	Circumference of front roll	=	3.1416"

$$\text{Twist constant} = \frac{F \times S \times R}{C \times D} = \frac{100 \times 132 \times 7.3}{26 \times 3.1416} = 1179.7$$

(Above data is taken from catalog of spinning frame used).

It will be observed that the foregoing calculations make no correction for contraction due to twist. There is an allowance of about 3 per cent made in the ratio of the whirl to cylinder for slippage. Theoretical ratio = 8 ÷ 1 1/16 = 7.53. The actual ratio after allowance for slippage is given in the catalog as 7.3.

Warp yarn to be spun = 20's
Square root of 20 = 4.47
4.75 × 4.47 = 21.2 turns of twist desired.
1179.7 ÷ 21.2 = 55.7 (Use 56 tooth gear)
Theoretical turns per inch = 1179.7 ÷ 56 = 21.07 turns.

The twist contraction chart (Fig. 1) shows that for a twist multiple of 4.75, the contraction is 7.8 per cent. It is evident that the 21.07 turns of twist are actually put into .928-inch of yarn instead of one inch. The actual twist per inch in the yarn is therefore 21.07 ÷ .928 = 22.7 turns.

The actual twist multiple is 22.7 ÷ 4.47 = 5.08.

In order to get the proper amount of twist in the yarn, the twist constant should be corrected to allow for contraction due to twist.

Using the same example as above:

1179.7 + 7.8 per cent = 1271.7 = revised twist constant.
1271.7 ÷ 21.2 turns = 60 tooth gear.
1179.7 ÷ 60 = 19.67 theoretical turns per inch.
The 19.67 turns of twist will be put into .928-inch of yarn.
Actual turns per inch = 19.67 ÷ .928 = 21.2 turns.

It is obvious that a different *revised twist constant* will have to be figured for each twist multiple being used. This may cause some confusion in mills which use several multiples, but in the majority of weaving mills only one or two multiples are used.

It is not very difficult to check the percentage of contraction due to twist on a spinning frame. This can be done by breaking out the roving on one spindle and running an end of spun yarn between the top and bottom front rolls. After marking the yarn on the adjacent spindle with a knot, or other means, the frame should be run for several minutes, the longer the better, and the yardage on the adjacent spindle reeled off down to the marker. By comparing that yardage with the yardage of spun yarn which is run through the dead spindle, the percentage of contraction can be determined.

I would be glad to have your readers comment on these observations, and contribute anything further of practical value in connection with the subject.

A. T. WISTER

How Do You Train Weavers and Loom Fixers?

Here is a most important problem. Please tell us what you are doing about it.

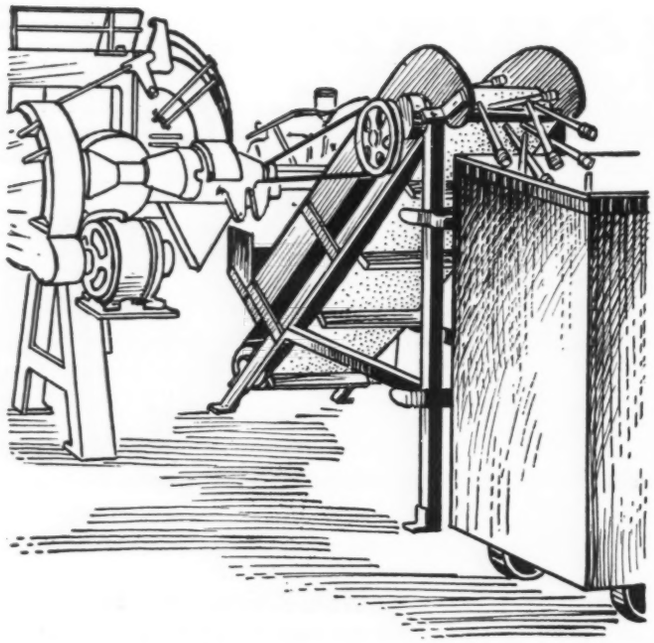
EDITOR COTTON:

Now that business has finally picked up, many of us are beginning to wake up to the fact that we are short of the kind of help we really want.

There are help of all kinds passing each day asking for work, and our experience has been that they cannot run our work even though they come recommended as good loom fixers and weavers where they worked last. I do not say they don't try, because the majority of people want to do the right thing and usually do need the work. The few that can run the jobs are usually satisfied for awhile and then wish to seek "greener pastures."

I think all overseers and superintendents will agree with me that their best help is the help they have trained on the job. What I would like to see you publish are some good, practical discussions on the methods other men are using for training weavers and loom fixers. Knowing that neither can be made over night, what is the quickest way of training them? I realize that when you ask for a quick way of training help it is somewhat like trying to install a sprinkler system after the mill has caught fire, but I am sure this is a common problem to which many of your readers have given considerable thought and I would appreciate seeing you publish letters from other mill men who have had experience along this line. I am interested in having all the details they may care to give.

CONTRIBUTOR NO. 6435



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THE elevator attachment is an important improvement to the New Type K Bobbin Stripper. It carries cleaned bobbins upward and drops them into a box of standard height. It may be installed on either side of the machine.

Before this elevator attachment was designed, cleaned bobbins were deposited in small boxes that slid underneath the machine. One of three alternatives was then followed:

1. An assistant removed the small boxes.
2. The operator stopped the machine long enough to do it himself.
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GREENVILLE...S. C.

Methods of Preventing Streaks in Mock Yarn

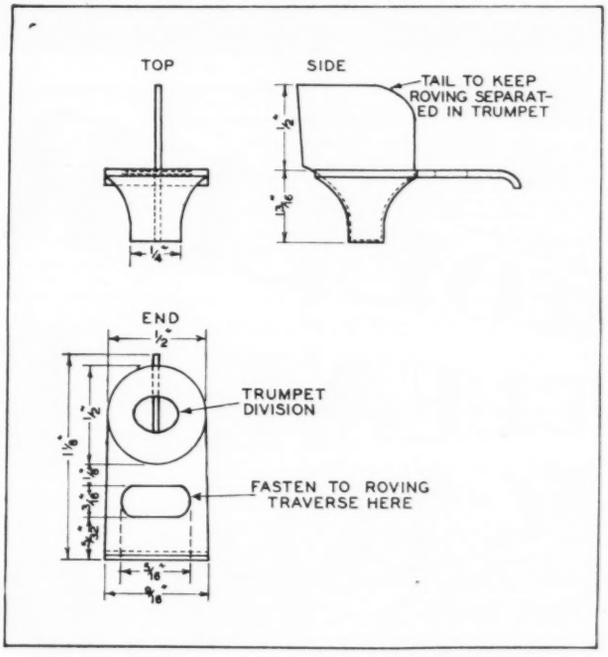
EDITOR COTTON:

According to his letter on page 83 of the November issue of COTTON, "CONTRIBUTOR No. 6424" is faced with a problem that has troubled all mills running mock twist yarn—namely, that of one bobbin of one twist yarn being a different shade from another bobbin, and in some instances two different shades being on the same bobbin.

There are two reasons for this difference in shade.

The first reason, and one which mill men will find hard to correct, is the fact that every time you creel-in new roving on the spinning frames, the weights of the roving are in all probability different from the weights of the roving just run out. As an illustration, if you are running 2.00-hank double roving, one end of white roving and one end of black roving, the roving in the spinning frame may weigh as follows: White roving, 1.97-hank and black, 2.03-hank, and when the spinning frame starts creeling, the white roving may weigh 2.03-hank and the black 1.97-hank. This will cause streaks or different shades in the yarn.

The second reason is when in creeling, the spinners allow the colored roving to cross over the white roving in the spinning frame, which will change the color and appearance of the yarn. This is because the white roving is twisting around the colored roving or vice versa. When you reverse the position of the roving going through the spinning roll, this changes the color and appearance of the yarn. The roving will cross over itself sometimes when there is nothing to keep it separated, and one of the best methods I know of is to have a trumpet with a "fish-tail" or divider, and have the colors creeled in, one color on one side of the "fish-tail" and the other color on the other side of the "fish-tail", and most of the trouble with streaks will be eliminated. I am sending herewith a sketch showing the top, side and end views of this "fish-tail" trumpet.



Top, side and end views of "fish-tail" trumpet

CONTRIBUTOR No. 6438

EDITOR COTTON:

Replying to "CONTRIBUTOR No. 6424", page 83 November COTTON, streaks in mock yarn such as he describes are caused for the most part from the roving ends crossing over on the spinning frame. To express it differently, if standing in front of the end, the black roving strand is running on the right of the white strand, it will give one shade; and if on the end next to it, the black strand is running on the left side of the white, it will be an entirely different color.

On long draft spinning frames, we have found it necessary to use the divided trumpet or "fish-tail" trumpet, because of the wide space between the back and middle rolls, to insure the ends not crossing either going into the trumpet or between the back and middle rolls. I am quite sure that if "CONTRIBUTOR No. 6424" will set his creel in, placing all of one color roving on the top creel and all the other color on the bottom creel, he will not have much trouble if he has conventional spinning. If it is long draft, he will either have to make the spinners inspect the ends to see that they are not crossed, or use the divided trumpet. [This contributor uses the same type of "fish-tail" trumpet described and illustrated by "CONTRIBUTOR No. 6438" in his letter above.—THE EDITOR.]

CONTRIBUTOR No. 6439

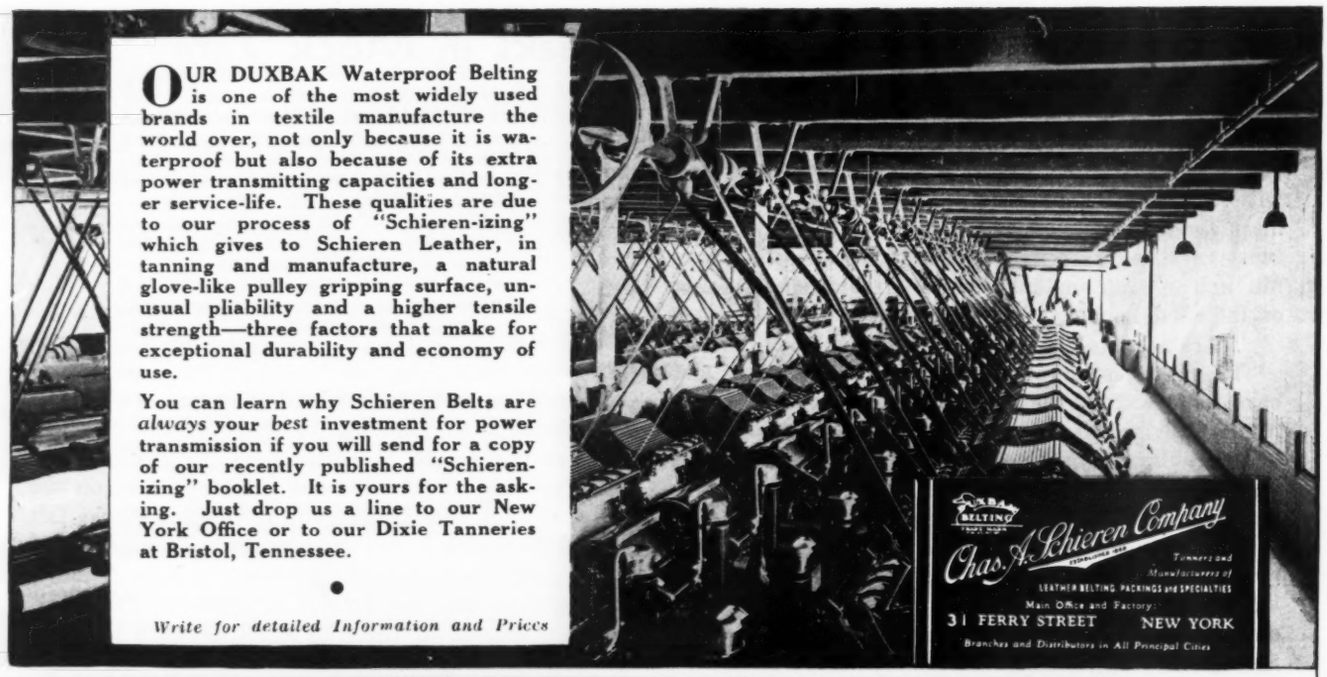
EDITOR COTTON:

This will be an attempt to answer the question of "CONTRIBUTOR No. 6424" on "How Can I Prevent Dark and Light Streaks in Mock Yarn?" which appeared on page 83 of the November issue of COTTON.

This man pointed out that in making a mock filling yarn, he has difficulty in that the yarn and cloth made from this filling shows up with dark and light streaks due to the yarn blending instead of mocking, or rather blending enough to cause a variation in the color of both the filling and the cloth.

I would suggest that he go to the spinning frame, remove the clearer boards and have a look at the white and colored roving as they come through the rolls. He will probably notice that on some ends the white stock is on the left and on other ends the white stock is on the right of the colored stock as they are being drafted. At the bite of the front roll the same condition may prevail.

While observing the bite he may also notice that at the beginning of the twisting, one color seems to be wrapping around the other. In other words, one color seems to be on the "outside" and the other on the "inside". If the white stock comes through on the left on some ends and on the right of the colored stock on other ends, it will seemingly be on the "outside" in one case and on the "inside" in the other.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This accounts for two shades of mock yarn. If the white stock is on the "outside" in the twist, the lighter shade of yarn will be made, and vice versa. I do not know which shade he prefers but he can make either one by keeping the white stock on the desired side of the colored stock on *every* end on the frame.

If he finds these conditions to be true, or that the crossing of the white and colored stock while being drafted is the cause of his failure to make uniform mock yarn, of course he is interested in a remedy.

I would first suggest double trumpets, which are now on the market. This is probably the most satisfactory remedy because it eliminates any possibility of the roving crossing over. Second, I would suggest that he arrange the roving in the creel so that it cannot cross while being drafted. This is of course cheaper than double trumpets and is almost as satisfactory when possible. It is not possible on all double-creels to get the desired arrangement, but he can readily determine whether his creels can be properly arranged or not.

If he will keep the roving on the same side on every end, I feel sure that he will not be bothered again with two shades of mock yarn.

CONTRIBUTOR NO. 6433

Remedies for "Pin Holes" in Weaving on Jacquard Looms

EDITOR COTTON:

This is in reply to the question from "CONTRIBUTOR NO. 6398" on page 87 of your July issue, with reference to pin holes in weaving on Jacquard looms. I would say that there are several weaving defects which go under the name of pin holes. Generally speaking, pin holes are supposed to mean small holes, caused by the intersection of warp and filling in fabrics which are to be waterproofed, and in this case they are a serious defect. As long as your inquirer has defined his pin holes as being caused by the filling kinking on the battery end of the loom about one or two inches from the temple and snagging a warp end, thereby leaving a hole in the cloth, I shall refer to this as a pin hole, although it would be more properly called a filling kink.

Why this should happen more often on a Jacquard loom than on a dobby loom, as your inquirer points out is the case with him, I cannot see. The harness motion of a Jacquard loom is exactly the same as that of a dobby loom, so that if the Jacquard is properly timed and adjusted it can be left without consideration of this defect. In Jacquard and dobby looms the motion of the harnesses is continuous and there is no rest, either in the top or bottom position, as contrasted to the cam and head motion looms where a certain degree of rest is given the harnesses.

In our effort to eliminate pin hole defects, we must time the harness motion so that it will not close over the filling before it is pulled tight in the shed; nor so late that it will permit the filling to snap back into a fully open shed when the shuttle comes to rest in the box.

It is only natural that the defect occurs at the battery side, as he points out, since there is always less tension on the filling when the shuttle is picked from the battery side. The reason for this is that the eye is at the rear of the shuttle when picked from the battery side, and thus the filling is not permitted to drag on the side of the shuttle. When the shuttle is picked from the plain side of the loom, the eye will be in the forward end of the shuttle which permits the filling to drag on almost the full length of the shuttle and thus the filling is given more tension through friction. I suggest that more tension be given the filling, if possible, to overcome this defect. Also see that the pick is neither too strong nor too weak; either of these faults is likely to cause the defect.

What I think is the most probable cause of this defect is that there is a drop of the cloth from the temples toward the center of the loom when the shed is fully opened. If this is the case, the filling, if insufficiently tensioned, will hug the warp ends held high by the temples, and is not pulled tight by the shuttle. The extra length of the filling is forced up between the warp ends as it is beaten up by the reed, causing the

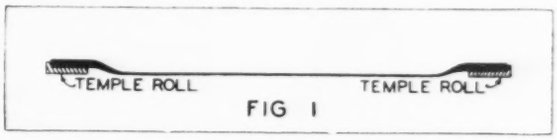

FIG 1

defect in question. To overcome this, lower the temples—or if this cannot be done, raise the take-up roll or the breast beam until the cloth lies straight be-

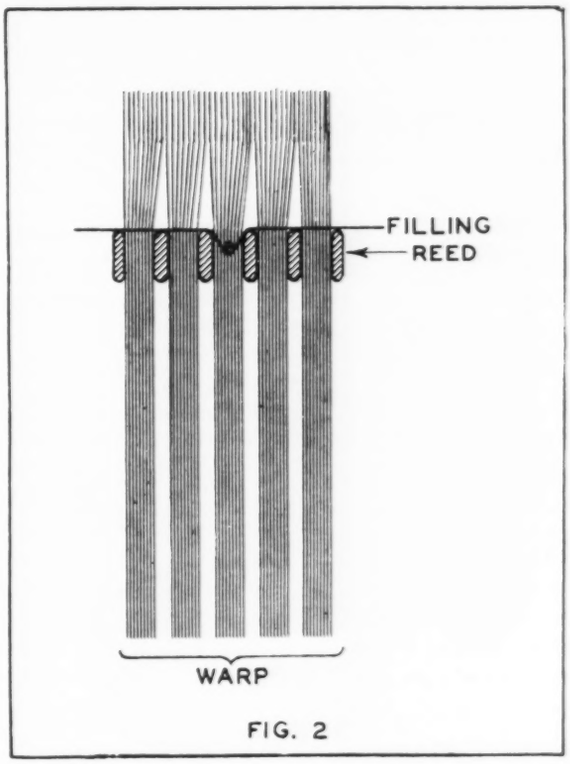

FIG. 2

tween the temples. To maintain the warp line, drop the harnesses, warp stop motion and whip roll. (See Fig. 1 for an illustration of the drop of the cloth).

Also see that there is a clear shed with all warp ends at the same level. The shed must be open and

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clear to the fell of the cloth. If it should happen that a pair of warp ends is sticking together and not becoming fully separated before the filling, as it is beaten up, forces them apart, it is most certain that a pin hole will result. (See sketch, Fig. 2). See that the lingos are heavy enough to lower the warp ends without sluggishness and that all harness eyes are on the same level.

Using too large a number of ends in a dent is very likely to cause pin holes. In this case if there is any sticking together of the warp ends, knots or other protrusions, the filling at this point will lag behind. (See Fig. 2). The succeeding pick being beaten up will force the lagged-behind point of the preceding pick into place and the extra length of this pick is forced up and down through the warp ends, spreading the latter apart.

Logically, the question might be well asked, why the pin holes should occur at the battery side and just outside of the temples. The answer to this is that if the filling is insufficiently tensioned with the shuttle picked from the battery side, and there is also a drop of the cloth from the temples, which will of course make the ends in the upper shed slack, both of these faults will combine to produce the defect at this place.

Without seeing the loom in operation, or a piece of the cloth with the defect in it, I offer these suggestions for whatever they may be worth in helping to overcome this defect.

I. M. (MASS.)

Some Questions for Spinners

EDITOR COTTON:

I should like to ask some questions for discussion in your "HOW OTHER MEN MANAGE" Department. They are doubtless old ones to the old-timers, and I have heard them discussed often. However, I did not get so much out of the discussions due to the fact that I was not directly interested but now I am responsible for such things, and while this is not an S. O. S. call, it is one that if answered properly and promptly will possibly save a few wrecks. These questions refer mainly to my own work, which is 30s warp and 40s filling for print cloth numbers, but we would be glad to see discussions based on any experience. Here are the questions:

1. What are the most common causes of ropy filling?

2. Which is proper for the ring rail, to go up fast and down slow, or up slow and down fast? Why?

3. What is considered the life of travelers to get good running work?

4. Is an end breakage of 31.25 ends down per 1,000 spindles per hour too high to be considered good, bad or fair? (This refers specifically to 30s warp yarn, 104 r.p.m. front roll speed, 13.33-draft, yarn made from 1-inch Strict Low Middling cotton.)

5. What would be the right number of bobbins listed per doffer in 48 hours, considering the fact that the doffer does not go to the spooler room, but that both filling and warp doffers "dump" their boxes into larger boxes placed conveniently in the big alley.

CONTRIBUTOR NO. 6440

What is Best Temperature and Humidity for Weave Room Over Week-end?

EDITOR COTTON:

What are considered to be the best temperature and relative humidity to try to maintain in the weave room over the week-end during the winter months? If the weave room is kept too warm without enough humidity, the filling sloughs off and the warps become brittle. If it is too cool, the weaving will not start up well.

Knowing that at best the conditions on Monday mornings are bad enough, I would like to have some help in overcoming them as far as possible.

CONTRIBUTOR NO. 6436

An Overseer's Thoughts on the College Man in the Mill

EDITOR COTTON:

For some time I have been reading different articles in your magazine with reference to the subject of college men in the mills. I would like to say that my experience with most of them has been favorable. There never was a time in the history of the textile industry when the need for trained men was so apparent as it is today. The college man has a golden opportunity awaiting him.

I agree with the writer of one of your recent articles who said that a fixer with several years of experience could probably start up a machine quicker than a college man could, due solely to experience. However, there is another side to the question of college men in the mills which is being overlooked by the average overseer and that is the fact that competition is so keen that we must have men of specific training. Take, for instance, the cost of a certain fabric or yarn; we know that the average overseer is incapable of making these calculations due to the lack of training. On the other hand, there is a definite lack of experience on the part of the college man in handling help, and with reference to mill conditions in general that makes him originally unsuited for a place as overseer where the question of help is involved. Of course there are exceptions.

I remember that at one mill with which I was connected there were two college men who made tests throughout the mill. One of these fellows seemed to be a very smart chap. The other was very unassuming and more inquisitive. It is needless to tell which of these two fellows succeeded, but here are the results: One of them was soon promoted to overseer of weaving, the other is still looking for a high position and large salary. The latter is the type who has wasted his time and money in going to school, for there is no room for him in the textile industry.

Yes, there is a splendid opportunity for the college man in the mills today. *If* he has good common sense, determination and an inquisitive mind, he will find a place in any of our mills, and none will welcome him more eagerly than I, for I realize his value.

F. J. T. (S. C.)

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11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

28. Akron Belting—Practical rules and general information for users of belting with belting catalog. By Akron Belting Co., Akron, Ohio.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Bulletin No. 500, Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

69. Monel Metal Equipment for the Textile Industry—A 50 page buyers' guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages, and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

—88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

93. Metso—Describing this industrial cleanser which has wide use in industrial cleaning of metals, floors, etc., and is used in kier boiling, silk and rayon degumming. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

94. New Development by Onyx—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphate. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk.—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. **Alemite Corp.**, 1828 Diversey Blvd., Chicago, Ill.

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

110. 3-In-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. Three-In-One Oil Co., 70 Varick St., New York, N. Y.

115. How to Cut Cloth Room Costs with Automatic Picking Machines and Improved Inspecting Machines—Hermas Machine Company, Warburton Ave., Hawthorne, N. J.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, N. Y.

131. Houghton's Leathers for the Textile Industry—This valuable handbook contains 88 pages of data on the proper selection and application of all types of textile leathers, including belting, special spindle belts, round leather belts, loom leathers, mill strapping, leather aprons, etc.—E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

139. Textile Detergents—Theory of the use of alkalis and control of pH.—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. Textile Machinery—Improvements in Design and Methods of Lubrication. A discussion of the problem of lubrication of textile equipment covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

143. Winders and Winding—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Massachusetts.

148. Leather Packing—.28 page booklet giving timely hints on the proper selection and installation of leather packings, the various types available, sizes and prices. Alexander Brothers, Inc., 406 N. Third St., Philadelphia, Pa.

150. Engineering Data Book on Mechanical Rubber Goods—21 pages of useful information and engineering data, designed to simplify the selection of belting, hose and other mechanical rubber goods for industrial service, including a review of belting requisites for a wide variety of uses as well as helpful tips on installation procedure. B. F. Goodrich Co., Mechanical Division, Akron, Ohio.

152—Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

153—Descriptive Folder of the New Low Cost Hermas Shear—Hermas Machine Co., Warburton Ave., Hawthorne, N. J.

154—Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1274 on the P.I.V. Gear—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Illinois.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

161. Fence—How to Choose It—How to Use It—book explains in detail how to chose a fence, determine values and prevent costly mistakes. Cyclone Fence Co., Dept. 4211, Waukegan, Ill.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

169. Tube-Tex High Speed Steamer and Finisher Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayon, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are finished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

173. Over the Rough Spots—28 page booklet describing Stonhard resurfacer for repairing and resurfacing concrete, wood, brick and composition floor, making permanent repairs to badly work surfaces. Stonhard Company, 401 North Broad St., Philadelphia, Pa.

174. Robertson Chain Link Fencing—giving details and specifications of Robertson chain link fencing, providing efficient and low cost protection for mill property. W. F. Robertson Steel & Iron Co., Elm & Second Sts., Cincinnati, Ohio.

176 Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical, informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 930 Arch St., Lancaster, Pa.

181. Eagle Penetration Roll—Illustrated pamphlet showing the advantages of the new Eagle Penetration Roll, made to fit in any type or model slasher size box, with complete description and suggestions for installation. Eagle Iron Works, Greenville, S. C.

182. M. & M. Hooks and Levers—Illustrated pamphlet descriptive of the M. & M. Hook and Lever, the latest improvement in weight levers. Illustrations show the construction of the lever and the importance of proper weighting of the top roll is stressed. M. & M. Textile Lever Co., P. O. Box 1552, Greenville, S. C.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

185. Dulux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin—Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

189. Walker Steel Products—Eight page illustrated catalog descriptive of the Walker method of quickly, checking the efficiency of machinery. The improved one-unit switch case and pedestal for above or below floor installation, is discussed in a practical manner. Walker Electrical Co., 526 Means St., N.W., Atlanta, Ga.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

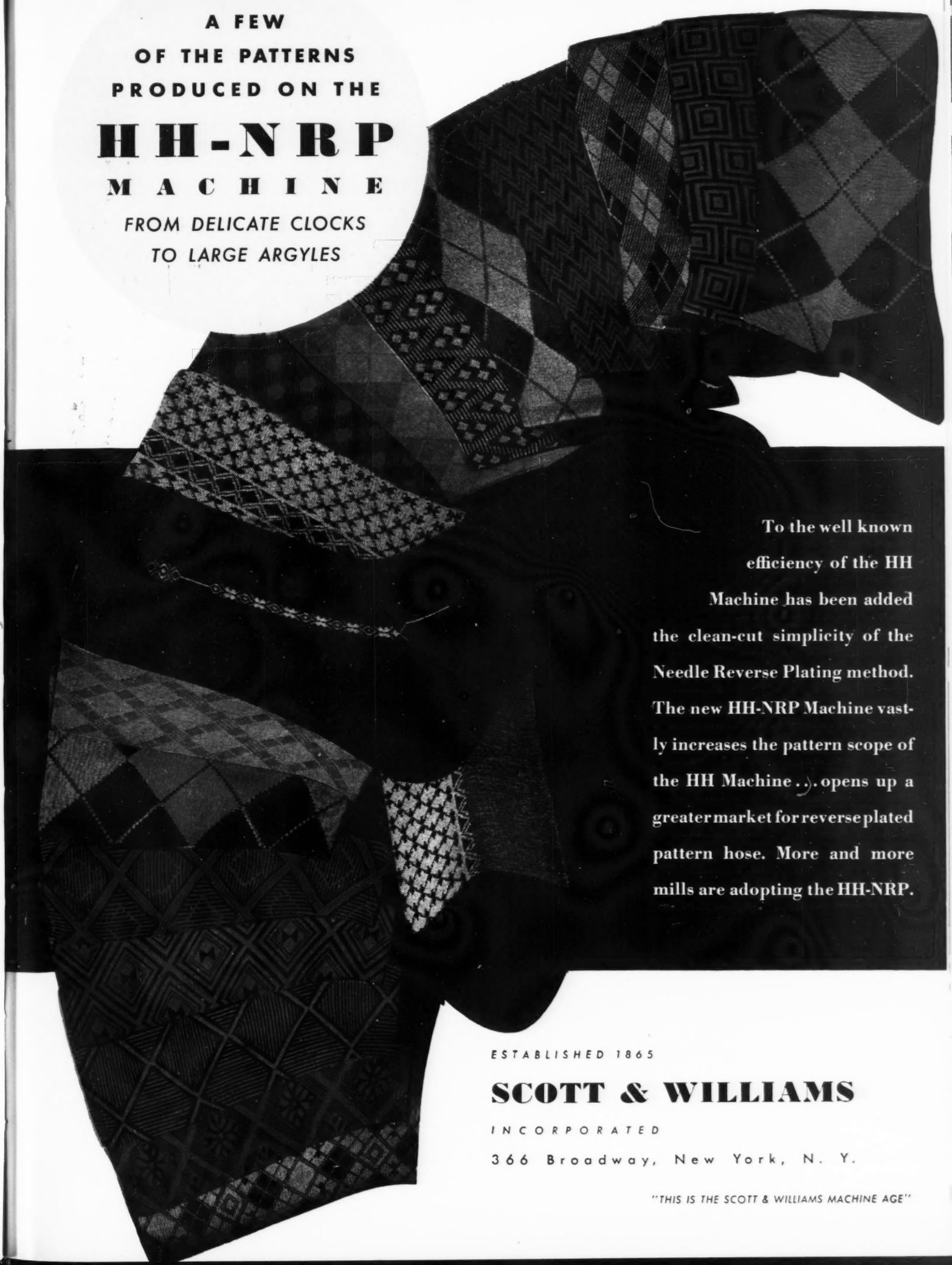
191. The Bahnson Humiduct—Bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

192. Wood Tanks for Every Purpose—100 page illustrated catalog showing the advantages and lasting qualities of wooden tanks. Rubber-lined tanks for dyeing and other uses in the mill are illustrated and discussed in detail. Hauser-Stander Tank Co., Ammen Ave. and Spring Grove Ave., Cincinnati, Ohio.

A FEW
OF THE PATTERNS
PRODUCED ON THE

HH-NRP
MACHINE

FROM DELICATE CLOCKS
TO LARGE ARGYLES



To the well known efficiency of the HH Machine has been added the clean-cut simplicity of the Needle Reverse Plating method. The new HH-NRP Machine vastly increases the pattern scope of the HH Machine . . . opens up a greater market for reverse plated pattern hose. More and more mills are adopting the HH-NRP.

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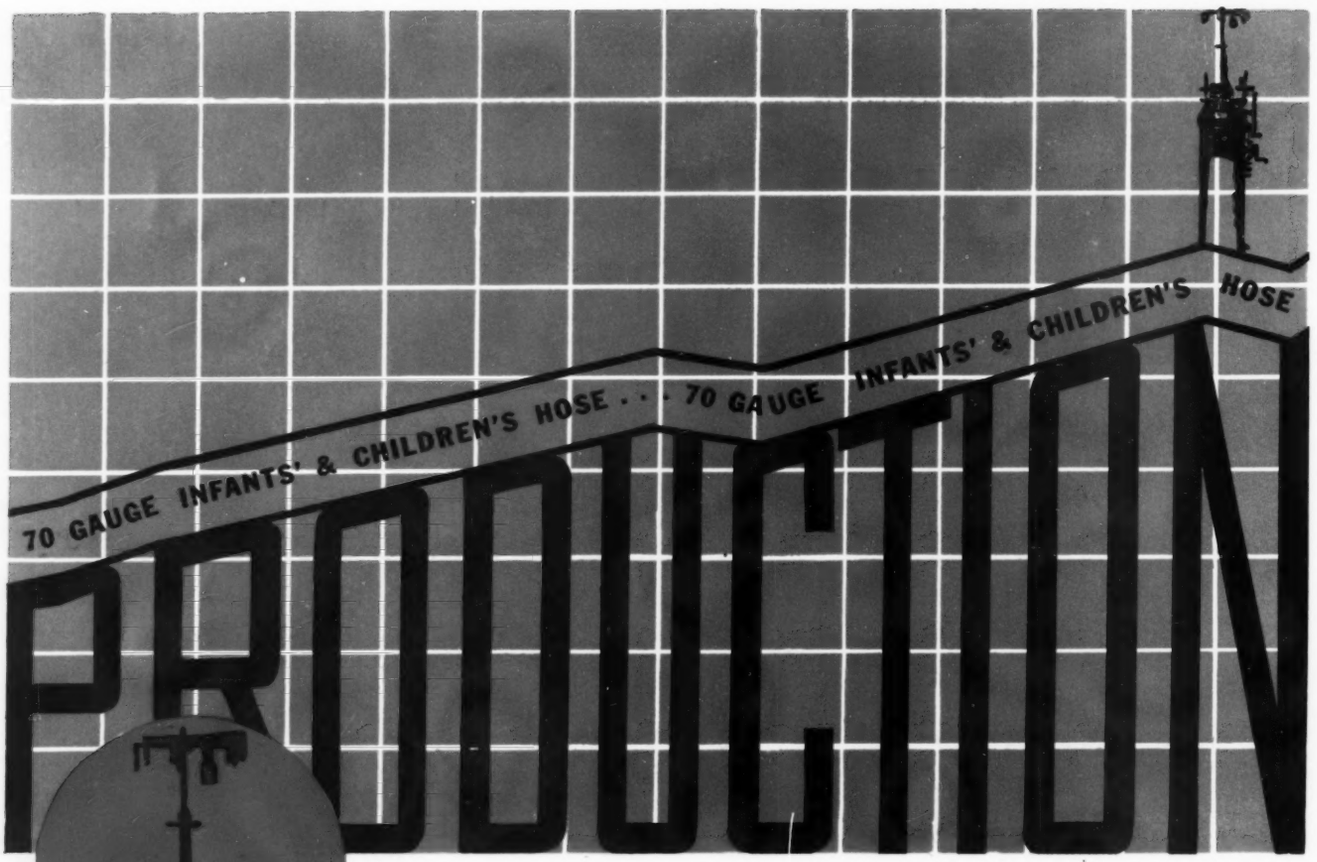

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The demand for 70 gauge infants' and children's hose is fast growing. The Standard Model H machine meets this demand and there's more 70 gauge hose made on the Standard Model H than on all other machines.

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STANDARD-TRUMP BROS. MACHINE CO., INC.

366 BROADWAY NEW YORK, N. Y.

KNITTING SECTION

The Laboratory as an Aid to Knitting and Finishing

By William T. Leggis

THE laboratory should be the nerve center of the full-fashioned hosiery mill if utilized properly. Control of silk throwing, experimenting with new raw materials, quality control of the knitting process, detection and solution of all plant problems —all should come under the scope of the laboratory.

In many cases, the chemist of a full-fashioned hosiery mill is burdened with routine analyses confined to the laboratory. If this be so, the laboratory is not functioning properly. The chemist should adapt himself to other studies outside the laboratory. Much of his time should be spent in the plant observing the various processing, both mechanical and chemical He should be looking for trouble and usually finds it.

Instead of first gaining the confidence and friendship of the various overseers, many chemists make the great mistake of immediately giving opinions and advice on matters about which they know very little or have given but little thought. Overseers have gained their knowledge through years of experience and are quite surprised and, in many cases, deeply vexed when an inexperienced chemist attempts to tell them things. It is most important that a chemist, new to a plant, carefully make sure that his comments and suggestions are correct before attempting to pass them on to the overseers. Even then, he should carefully analyze the personality of the overseers and present the advice in a way which would not offend. Once an incorrect suggestion is made, or the good will of an overseer is lost, the future work of the chemist is almost sure to have little success.

It is a difficult thing for a chemist new to the industry to impress the fact upon some superintendent or overseer that even though they have been in the business years before him, that the ideas and results of careful study and research are undeniably of value and should be given a trial.

One of the greatest obstacles to new ideas and the use of new products is inertia and the lack of willingness to try new methods because of the upsetting of formulae or routine, temporary though it may be. A dyer, for example, may be doing an excellent job, turning out a fine matching and a product that stands up well in most every respect. Probably for years he has been using the same dyestuffs and their behavior is an exact knowledge to him. His work is greatly simplified, for his formulae work out as closely as is practicable to expect them to work out. If the use of a new dyestuff is suggested, the dyer, as a rule, stands aghast at the thought of the disruption of his carefully planned routine, even though it may mean a saving in cost and may better the final product to use a new dyestuff.

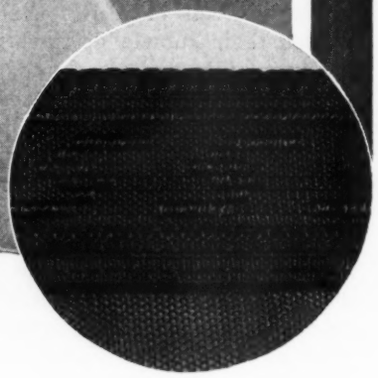
Yet, other factors must be borne in mind. Production must be kept up, and the use of new dyestuffs might, for a few days, seriously tie up production until the dyer thoroughly becomes familiar to the behavior of the new materials. Also, the dyer, as a rule, has trouble enough and feels that a slight saving is not sufficient to warrant a change. The common attitude is "The work is O. K., the product is acceptable, so why look for trouble?" There is a lot of truth in this statement, yet it cannot be denied that a carefully planned and executed laboratory project can successfully be duplicated in the plant with not too much difficulty. True, results obtained in a beaker and a machine do not exactly coincide, yet the careful study of laboratory results will make the application to the plant scale so much easier. It is cheaper to learn something in a beaker than in a dyeing machine loaded with valuable materials.

The case of the dyer is typical of all departments. The inertia behind the overseers because their present methods are successful must be overcome. A good dyer or overseer can adjust himself to new methods in short order. If he cannot, he is not the man for the position.

The purpose of these articles is to illustrate the various types of problems which exist in full-fashioned hosiery mills, and the methods of their solution; also, the various routine testings which are very important will be discussed.

Checking on Raw Materials

The first duty of the laboratory is to check up on all raw materials. This is of the utmost importance if successful plant operation is desired. Uniformity of product is, in the majority of cases, of more value than cost and should be rigidly checked. If silk is bought in a raw state it should be carefully condition-weighed. The value of this step may be doubted by some, but it is of great importance, even though



A close up of the Fastlock elastic top. No wrinkle, no gather, not even a thread shows. Three threads give triple strength to the union.

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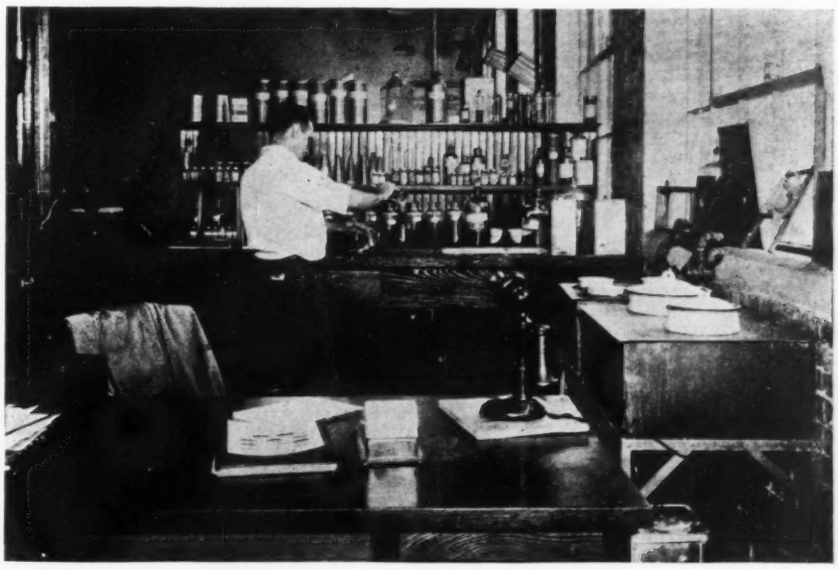
invoice adjustments cannot be made in case a shortage is found. It is common to find bale silk averaging over 1 per cent short in weight, sometimes as high as 2 per cent.

The question may arise, "What is the value of condition-weighing if the shortage cannot be adjusted?" It is this: the value is in knowing whether there is a shortage or not, for future reference when inventories are taken. It is quite a usual thing for silk inventories to be short, and in a great measure they can be accounted for by the per cent or two shortage to begin with. There is no need of unjust accusations of employees' stealing silk, or of exceptional waste in any departments if an exact knowledge is had of raw materials.

The Active Laboratory of a Southern Hosiery Mill



The laboratory can be of great assistance to the manufacturing and finishing departments of the mill . . . . . .

This same procedure of condition-weighing cotton is also advisable. Sometimes it proves quite profitable. Recently I had an experience of our cotton running 2 to 3 per cent short in weight consistently. Finally, cases of cotton were sent to the United States Testing Company directly from the manufacturer and a shortage again was evident. This procedure was necessary because the results of a neutral testing house were necessary for any invoice adjustments. The final result was an adjustment on all shipments dating from the time we began testing our cotton shipments. This illustrates that even the very large cotton manufacturers are not infallible and are willing to adjust matters if they can be shown to be in the wrong.

Another interesting fact in regard to cotton is the "count." A 60s/2 combed-peeler mercerized cotton has a tolerance between the range of 58s/2 to 62s/2. Very often the count varies outside these limits and the usual result is a loss to the firm. It has been my experience to find a 60s/2 combed-peeler mercerized cotton always heavier than a 60s/2. 58s/2 and 59s/2 are common with occasionally a shipment down as low as 57s/2. These count determinations were all made accurately and conditioned to 8½ per cent moisture regain.

Assume a shipment of 2,000 pounds of 60s/2 cotton, determined by careful test to be actually a 57s/2. The difference in size is not sufficient to adjust a knitting machine. Hence, the increased yarn consumption is approximately 5 per cent over that which it would have been if the count were 60s/2. A 5 per cent inventory shortage would no doubt become evident, in this case approximately 100 pounds. Adjustments of this nature are problematical, but the value of knowing the why and wherefore of a shortage is again assured. It is important that cotton counts be kept within their limits and the better cotton-yarn manufacturers will co-operate with any firm taking sufficient interest in their cotton yarns to determine and specify what they want. It is not unusual for the purchasing agent to have an opportunity to buy a job lot of cotton yarn and does so without thinking of the complications which might arise in further processing.

Prefers Using One Brand of Mercerized

It is a very good policy in full-fashioned knitting, where a cotton-plaited heel, sole, and toe is made, to use but one brand of mercerized cotton. Mercerization affects the dyeing affinity of the cotton, and since the mercerization process is not carried out identically the same by the various cotton manufacturers, the dyer is sure to experience almost irreparable trouble if two or more brands of cotton yarn are dyed in the same batch. Imagine the case of a dyer having a batch of stockings with a cotton plaiting from two different brands of mercerized cotton yarn. If the plaiting is bad in places, the dyer must use his skill to match as exactly as possible the cotton to the silk. What if now he succeeds in doing so and then finds that on drawing a further sample the cotton still does not match the silk. There is nothing more the dyer can do except finish the lot as is, knowing quite well that some of the stockings are going to show the poor plaiting. In matters like this the laboratory should always be consulted before the damage is done. Samples of the job lot of cotton should be submitted to the laboratory and analyzed for strength, count, and dyeing properties. A sample stocking should be made up, plaiting one-half the stocking with the standard plaiting yarn, and the other half with yarn from the job lot available. If they do not behave alike in dyeing, the job lot of cotton should never be bought. It would be impractical to attempt to keep separate, stockings made from each yarn. Eventually they would be mixed and the dyer's troubles would begin.

(This article covering further illustrations of how the laboratory can serve the mill will be continued in an early issue.—The Editor.)

"Lost time is never found again"

BENJAMIN FRANKLIN

In a 40-hour week the new READING high-production twenty-four section forty-five gauge full-fashioned knitting machine produces nearly sixty per cent more volume and more than seventy-five per cent more value than the ordinary eighteen-section thirty-nine gauge machine.

TEXTILE MACHINE WORKS • READING, PA.

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

What is a Good Needle Consumption on 42-Gauge Full-Fashioned?

EDITOR COTTON:

I would like to see in "KNITTING KINKS" some discussion from full-fashioned manufacturers as to needle consumption on 42-gauge machines on service weight hose. Specifically, our conditions are that on this type of work on Reading machines, we have some 20-section long type needles and some 24-section short type needles, high speed, and I think we are using too many needles. We use 50s/2 yarn in the welt, and put 38 courses to the inch; 7-thread silk 78 per cent 10 turns right in the leg, 100s/2 in the high heel, and one 50s/2 and one 100s/2 in the heel, 48 courses per inch in the silk. Our 20-section machines run 48 to 50 courses per minute and our 24-section machines run 58 courses per minute.

We have changed from 3- and 4-thread to this 7-thread silk, and it seems to me that we are using entirely too many needles on this kind of hose and I would appreciate some light thrown on the subject by the experience and observations of the others.

I might state that our machines are single-carrier, and naturally I would want the information on this basis if possible, but it might be interesting also to have the views of some of your readers as to needle consumption on single carrier and three-carrier equipment.

CONTRIBUTOR NO. 6441

A Kink for Making a Satisfactory Looper Line on Seamless Machines

EDITOR COTTON:

Machine fixers who work on the older types of Scott & Williams knitting machines have doubtless had trouble with keeping a satisfactory looper line in their work. I think they will find very helpful a remedy that we have been using for the past several years.

Of course, the looper line does not give much trouble as long as the machines are new. After they have been run for several years, though, it becomes necessary for the fixer to make frequent replacement of cams and other parts, also he often has to make adjustments to take up wear in the machine, and this very often throws the looper line off.

As the looper line cam is placed in the heel and toe sizing row, the only way that the line can be made larger or smaller is by making a new cam larger or smaller or by shimming up the old one. Then, too, the only way that the line can be made to go all the way around the sock without going several rounds is by making a new cam or by changing the adjustment of the drum. Either of these jobs takes some time and they are likely to be passed up by the fixer until his machines get to running better. By the time this happens he has forgotten about the looper line.

To make these adjustments easier for the fixer, we had several rings of cams turned at the machine shop with a flange on one side next to the drum. This cam is the regular looper line cam except the flange which is about 3/8-inch wide and 1/16-inch thick. This cam we cut up in pieces the length of the regular looper line cam. Then we drill a hole in each end of it through the flange to fasten it to the drum. These holes are slotted with a file so that the cam can be moved backward or forward on the drum. We fasten this cam to the drum with two flat head 6-32 screws, not in the regular sizing cam row, but in another row that we are not using for anything else.

By doing this we can adjust our looper line in a moment by simply screwing in or out on the sizing screw. This makes it very easy for the fixer to check over his work and keep each machine making a perfect looper line. The expense of fixing a machine is very small and any good fixer can do the work in a few minutes.

CONTRIBUTOR NO. 6442

Back of every development in the design and construction of hosiery yarns or knitting machinery is the experience and skill involved in the making of the needles. That we are America's largest producers of Spring-Beard Needles and that nearly all manufacturers of fine quality full-fashioned stockings are standardized on Royersford Needles is a tribute to thorough workmanship.

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ROYERSFORD NEEDLES

RIBBERS--Article 3

Notes on Their Operation and Adjustment

(Editor's Note—This is the third of a series of articles discussing the operation and adjustment of the parts of rib machines. The first article in the series appeared on page 102 of the November issue, and the second article appeared on page 96 of the December issue.)

EDITOR COTTON:

The Cam Ring

If we go back a few years and compare the cam ring of an old, plain ribber which made only plain tubing with the cam ring on up-to-date ribbers of today, we can more readily realize how much progress has been made in rib machine construction. Yes, it's a mighty long jump from a plain tubing machine to one that will produce a selvage welt, picot edge, loose course for the knitter, French welt, lace stitch effects, dropped stitch effects, laid-in elastic yarns, and two, three, four and five-color yarn changes—two feeds in some of the larger diameter machines and feeds by the dozen in large body machines which produce underwear fabric and other garment materials.

Just what would a rib fixer of twenty years ago have to say if he could see a modern ribber humming along doing things he would not be able to visualize in his wildest dreams? Surely he would have to see to believe.

Just what has all this to do with the cam ring? Simply this: all of the devices and attachments necessary to produce the various kinds of rib tops referred to have a direct bearing on the cam ring. They are a part of it. They have made the cam ring assembly more complicated, to be sure, but they have also in a like measure made it more useful and therefore more profitable.

The Cam Ring Assembly

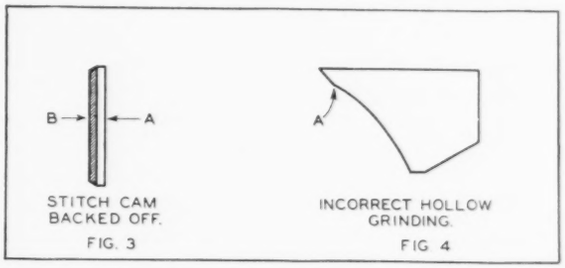
All of the cams which are attached to the inner side of the cam ring have but one function, and that is to control the cylinder needle movement during the various knitting operations. These cams can be divided roughly into two classes, cams which raise the needles and cams which lower the needles. Since some of the cams do not require adjustment or up-and-down movement, they are attached securely to the inner cam ring surface. All cams which must be raised or lowered during the various operations are attached to movable parts which are located in the cam ring and controlled by lever action or screw adjustments.

The Stitch Cam

In order to produce good fabric, the stitch cams must be kept in tip-top shape at all times. Keeping stitch cams in tip-top shape does not mean allowing them to run day in and day out for weeks or months. No, not that, it means going over them regularly, repolishing them, removing all nicks and rough places, thus saving waste, preventing excessive needle butt breakage, avoiding various kinds of machine trouble, and increasing the useful life of the stitch cams.

Straight faced stitch cams have been in use on rib machines for years; however, during the past few years some of the leading rib machine builders recommend and supply hollow ground stitch cams. Knitting machine builders have used hollow ground stitch cams for many years with gratifying results; it would be impossible to produce some types of hosiery as made today without them. Perhaps the rib machine builders borrowed the idea from the knitters.

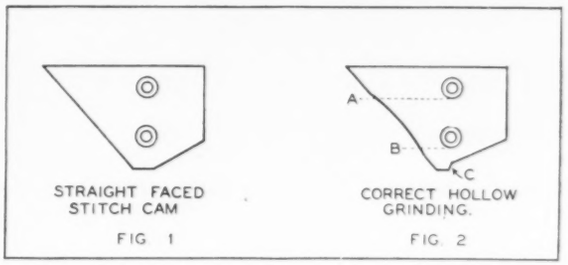
Hollow grinding stitch cams is not difficult. Use a fine grit medium hard grinding wheel about five inches in diameter. Fig. 1 shows a straight faced



stitch cam; these cams are almost identical in size and shape on the various makes of ribbers in use today. Fig. 2 shows a stitch cam which has been hollow-ground. Note the hollow-ground portion begins in line with the bottom of the upper screw hole and ends in line with the bottom of the lower screw hole. The hollow-ground portion should be about 7/8-inch long and from 3/64-inch to 1/16-inch deep in the center, and it should begin and end gradually as shown at *A* and *B*. Hollow grinding will improve the appearance of the fabric, overcome various knitting troubles, and assure better plaiting.

Many rib fixers follow the practice of narrowing the lower point of the stitch cam as shown at *C* in Fig. 2. A better loose course lap can be made and a quicker release of the needles is effected at the knitting point. According to old-time rib fixers, the narrow-pointed cam will reduce cutting of holes in the loose course and reduce knitting troubles generally where fine count tender yarns are used in making plaited goods.

Some years ago I saw a rib fixer grind off half of the face of a stitch cam on its outer side; he called it backing off the cam—as shown in Fig. 3. When I



asked him why he did it, he said it reduces the tendency of tilting the needles outward away from the cylinder, controls the needles better since the cam acts on the needle butts near the cylinder and both long and short butt needles when they are used in connec-

tion with various attachments are controlled by the stitch cams in the same manner. It sounds logical—try it.

Before leaving the question of stitch cams, I want to relate an incident in connection with Fig. 4. A rib machine builder's representative, usually called a factory man by the boys, had visited our mill and made numerous helpful suggestions about caring for the machines he had sold us. Among other things he demonstrated hollow-grinding stitch cams. After he had gone one of our younger fixers proceeded to follow his instructions. I have shown the results in Fig. 4. He got into trouble, to be sure; the hollowed portion is too long, too deep, and begins too abruptly at *A*. The boss happened to come along and advised the youngster to tack the stitch cam up on the wall behind his work bench as a reminder that there are right and wrong ways to do everything. All of our rib fixers agreed that the factory man was right and his suggestions and advice were helpful and I'm passing it on to you; so my compliments to the factory man!

While we are on the subject of stitch cams, I would like to leave this thought: If a worn stitch cam is giving you trouble, don't hesitate to throw it in the scrap pile. It made money for the mill while it was useful and it will *save* money for the mill if you scrap it. One day's waste caused by a bad stitch cam will cost more than a year's supply of stitch cams for one machine.

The Stitch Cam Post

Stitch cam posts must have free up-and-down movement to permit making a good loose course and to assure response to minute stitch adjustments. Side play in the stitch cam post should be kept at a minimum since it is likely to permit the stitch cam to bind against the cylinder, shear off or bend butts, or permit very short butt needles to jam between the cylinder and the stitch cam. A few drops of oil on the stitch cam post about twice a week will keep it working freely if the post and cam are fitted correctly.

(The next installment in this series will cover the clearing course cam, press-off cam, welt levers and gear ring.)

R. B. ORR.

How Can I Make a Perfect Vertical One Sinker Stripe?

This man wants to make a perfect vertical one-sinker stripe on reverse plaiting H H machines, with a loose stitch. Can you help him? . . . . .

EDITOR COTTON:

I would like very much to see in your "KNITTING KINKS" department the ideas of some practical mill men on how to make a perfect vertical one-sinker stripe on reverse plaiting machines using acetate over cotton and knitting a loose fabric. This refers to Scott & Williams Model HH machines on half-hose.

CONTRIBUTOR NO. 6432

Dyeing Balbriggan Cloth

EDITOR COTTON:

I note the inquiry of "CONTRIBUTOR NO. 6392" in connection with handling cotton balbriggan cloth and rayon and cotton mixtures. He reports first trouble with streaky dyeing on this cloth and wants to know the remedy.

In the dyeing of cotton knit cloth it is very important that the bleach bottom be done properly, otherwise streaky and uneven dyeing will result. In the writer's many years of experience the following method has proven to be most satisfactory: Load the goods on the machine; if cotton and rayon, it is advisable to give them a hot water bath first with 2 per cent of soda ash at a temperature of 180 degrees F. This is done to remove all the oil in the rayon which will otherwise give trouble. Run this for about ½-hour, then plug water and run fresh water in. In this cold water use 3 per cent of a technical sodium peroxide containing a minimum of 20 per cent available active oxygen, 2 per cent of sodium silicate, and 1 per cent of soda ash. In the case of carded yarn, use caustic soda instead of soda ash, or use one of the many prepared bleach compounds that are on the market, without modification.

Bring this bath to a boil and boil for an hour or longer until the desired degree of bleach is obtained. Then plug water and rinse well. This is important.

Then dye in the next water with 2 per cent of sulphonated castor oil and approximately 1 per cent of soap, or just enough to keep the bath foamy. Start the dyeing at a lukewarm temperature; then heat gradually to a boil and continue boiling for a half hour. If the color is correct, plug, rinse and take off.

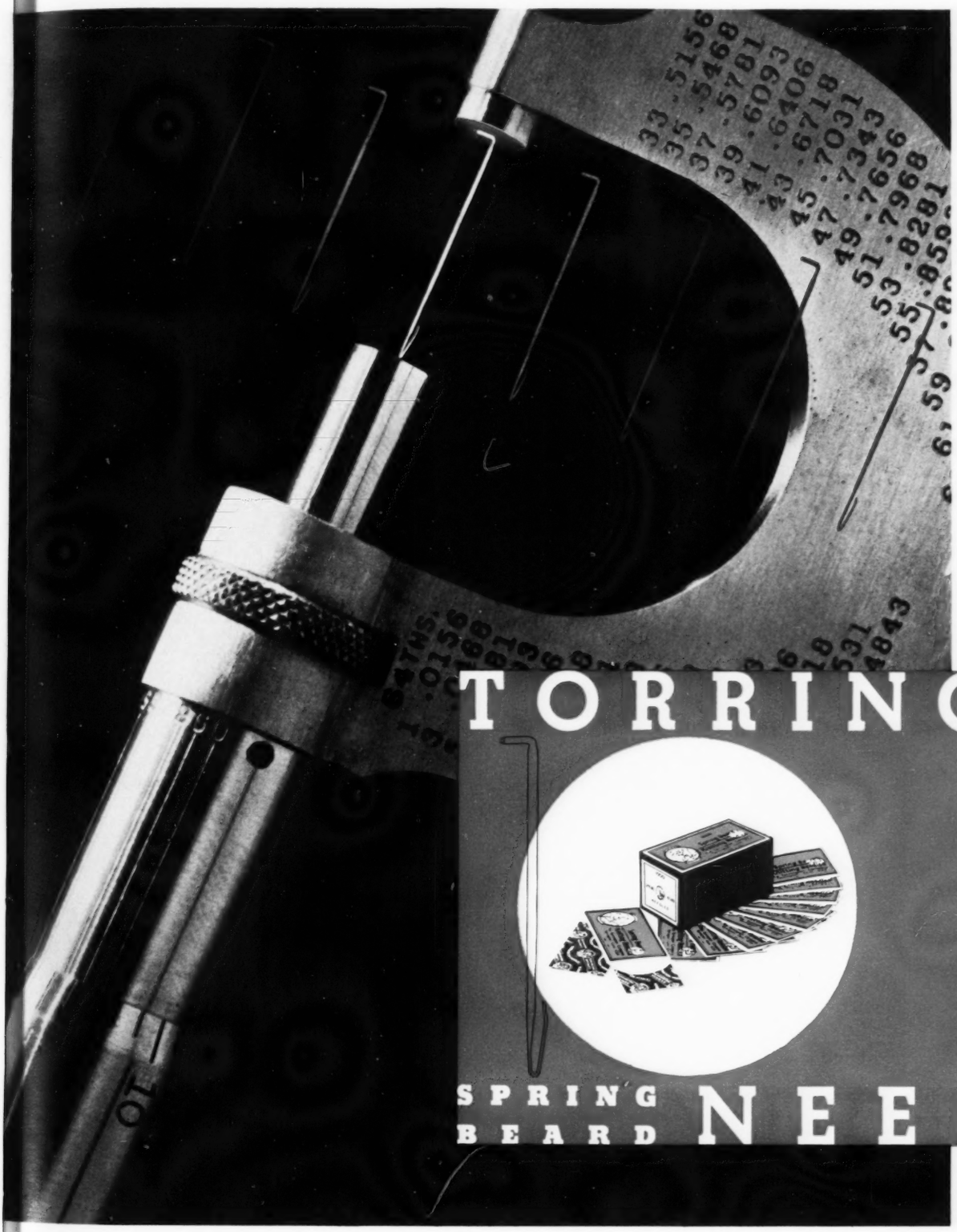
In case more color must be added, it should not be added at the boil unless dyes which apply very evenly are being used. It has always been the writer's experience that adding color at a boil on knit cloth is not a good procedure. It is best to plug half of the bath and add cold water and a little more soap; then add the color.

In case the goods to be bleached and dyed are all-cotton, proceed as described. Under no circumstances should boil-off oil be used in the bleaching process as this will cause trouble.

Your inquirer reported also difficulty with curling of the fabric prior to sewing the garment. There are two methods of applying anti-curling solutions, according to my experience. One is in the open bath, the other is by means of the Tube-Tex machine. The open box method is as follows: In the last rinse after dyeing, add 5 per cent of anti-curl agent. Those which have been tried and proven more satisfactory by the writer are known as Indelay and Indefirm. Dissolve the anti-curl agent in hot water, then add it to the bath at about 110 degrees F. Run for 20 minutes, then take off.

The anti-curl agent may be applied by means of the Tube-Tex machine which in my experience gives absolutely no waste, and all of the agent is applied to the goods. Eight to 10 pounds of anti-curl to 10 gallons of water will process about 300 pounds of goods on a Tube-Tex machine.

Machine-made means uniform over-all length. No short needles to pull a tight stitch. No long needles to pull a loose one. All Torrington needles are the same...



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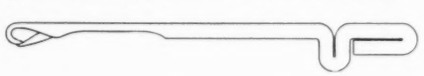

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NEEDLES

If a very soft hand is desired, use more castor oil in the dye bath, or a small amount of glycerine in combination with the anti-curl agent—up to one-half pint per pound of anti-curl agent.

CONTRIBUTOR No. 6403

EDITOR COTTON:

The questions of "CONTRIBUTOR No. 6392", in regard to the processing of balbriggan cloth, as published on page 99 of your July issue, are very worthwhile.

A one-hour scour at the boil with sodium peroxide and tri-sodium phosphate is a very good method of preparing balbriggan cloth for the dyeing of light shades. The degree of whiteness desired will tell just how much peroxide to use. Three per cent on the weight of the material is the usual amount. Bleaching compounds containing sodium peroxide are sold under different trade names by many chemical concerns.

Sodium hypochlorite is sometimes used for bleaching balbriggan fabric prior to dyeing but it has its disadvantages for it hastens the affinity of the dye for the fabric, thereby producing some of the dye streaks mentioned by your inquirer.

In answer to the other question from this man, the writer has found that for laying the fabric in the finishing department, prior to being sewn into garments, a product called Indelay W is very good. To the last rinse at 100 degrees, 25 pounds of this paste should be added to a 15-string reel machine. A short extraction should be given the fabric so as to keep as much of the solution in the cloth as is possible.

CONTRIBUTOR No. 6404

Disposing of Three-Carrier Press-Offs and Spoiled Stockings in the Gray

EDITOR COTTON:

The problem of disposing of three-carrier press-offs and spoiled stockings, in the use of three-carrier attachments on full-fashioned machines, was brought up by "CONTRIBUTOR No. 6364" on page 111 of your March issue*. He stated that formerly, in operating single-carrier machines, the press-offs in the gray as a last resort could be backwound for reclaiming the material, but three-carrier press-offs cannot be backwound. He asked for suggestions as to a solution of this problem.

I infer from his remarks that he does not insist upon the knitters topping-on their press-offs on single-carrier work. We do not allow for the accumulation of press-offs at the knitters' tables. We do not collect or reclaim by backwinding any pieces that have knitted past the welt far enough to allow room to top-on; pieces of welt long enough to backwind we do reclaim, preventing the use of silk pieces as tie strings; cotton welts incompleted we do allow to be used as tie strings.

We find that the knitters pay very little attention to the cause and prevention of press-offs unless they are made responsible for their topping-on and completion. Our regular inspection of knitters' tables insures against accumulations of more than a specified number of welts, pieces knitted to the calf narrowings, pieces knitted to the splicing and heel.

Three-carrier fabric can be topped-on by the knitter but cannot be raveled down after topping except by cutting away the selvage wales. After a piece is topped-on, a razor blade point is forced through the fabric as near to the needles as possible and the fabric is slit, not more than three wales in from the selvage. This narrow piece is snipped off and the remainder can be raveled away. A wet brush can be applied to the needles just before starting the machine to eliminate a course line as far as possible.

One of our neighbor manufacturers makes a practice of collecting three-carrier press-offs and selling them as clips, slitting all large pieces to prevent reprocessing.

Our experience is that insisting on all press-offs being topped on the leggers makes for more care on the part of the knitters, regarding the cause, and more care is taken of the guides, pads, and carrier tubes and the handling of the yarn.

I hope this will help your inquirer. It is certain that three-carrier operation is a more costly process in the knitting department and needs careful supervision in order that losses may not overcome the difference in the sales price.

CONTRIBUTOR No. 6408

EDITOR COTTON:

In reply to the inquiry of "CONTRIBUTOR No. 6364" with regard to the disposition of press-offs and spoiled stockings in the gray on three-carrier full-fashioned work, we top the waste from the legger back on the needles just the same as in single-carrier work to replace a press-off.

The spoiled stockings from the seaming and looping room are raveled back to two lengths, namely, to the start of the high spliced heel and to the last calf narrowing, and we top these back on the needles in full sets. Any waste between the last long narrowing in the calf and the shadow welt is thrown into the waste. The welt and the shadow welt, being single carrier, can be backwound.

The waste could be topped on at any given length just the same as in single-carrier work, but the time required to top the stockings on and the high percentage of seconds made from topped-on legs does not warrant trying to reclaim shorter pieces of legs than the two lengths mentioned.

If the silk could be backwound it is very doubtful that it could be profitably knit back into legs again. The split and broken ends and the many knots in backwound silk makes a very poor stocking. You certainly cannot take the risk of mixing it with original cone silk and spoiling good silk. It should be run as a separate class. We try to run up our backwound silk into cheap seamless half-hose. My answer to the question, then, is not to try to reclaim any waste that is not profitable.

CONTRIBUTOR No. 6366

(*) Two discussions of this question appeared on page 133 of the May issue of COTTON; a third answer was on page 100 of the August issue.—THE EDITOR.

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THE KNIT GOODS MARKETS . .

AFTER an extremely active market in full-fashioned hosiery during August, September and October, concurrent with a stronger price situation due to the rapid advance in raw silk which culminated October 21, demand during the last month has dropped off more than was seasonally expected. At the same time, some price weakness has developed which is causing purchasers who placed contracts during the previous three months apprehension. This falling off in demand for goods accompanied by less bullish sentiment in raw silk has also postponed advances which manufacturers had expected to place in effect December 1.

While there are reports certain manufacturers plan to announce price advances at the beginning of the year, developments in the market during the last month make this less positive, although the industry as a unit declares that notwithstanding the recession in silk from its peak of late October, full-fashioned hosiery prices as named by manufacturers are too low for the present level of silk.

Prices Still Too Low Even with Cheaper Silk

Raw silk is now quoted around $2.00, which compares with $2.19 to $2.24 a month ago and with the high of October 21 when it reached $2.40. This commodity reached its lowest point last year at $1.35. Reports are that a large number of manufacturers bought silk heavily during October so that such purchases show them a considerable loss and at the same time affect their competitive position with full-fashioned manufacturers who operated on more of a hand-to-mouth basis and who have been able to take advantage of this recent decline in the raw material market.

Opinion in the trade is that the corrective adjustment in silk has been largely completed and that manufacturers can cover several months ahead with comparative safety at current levels. There are many who assert this decline was a natural one in view of the rapid and drastic advance that silk registered during the early part of 1935 and they believe that the next movement is apt to be upward.

The large number of unseasonably warm days in many sections of the country since early October with its consequent falling off in retail sales has been felt in the primary market to a considerable extent and is one of the most important factors in bringing about a softness in prices quoted by certain manufacturers for January-February deliveries. It is reported 4-42s, ringless, have been sold at $5.50 per dozen for these deliveries to catalog houses and chains comparing with $5.75 to $6.00 usually quoted on desirable goods of this description. The amount of business booked thus far on full-fashioned goods for next year deliveries is debatable. Representative manufacturers declare they have not booked any important business for delivery beyond the end of this year and declare they will not do so at prices offered thus far by large operators, but it is obvious that such business has been taken by some mills. Manufacturers at present feel that their business during the next two weeks will be affected to a considerable degree by the weather. A sustained cool speel, together with a large volume of holiday buying of full-fashioned would do much to strengthen quotations and place manufacturers in a stronger year-end condition.

Price Weakness Better Now than Later

There is some danger that full-fashioned hosiery manufacturers will finish the year with fairly large stocks of goods on hand. The industry as a whole experienced such an active demand for their product during August, September and October, they felt that demand could not possibly fall off before the end of the year to the extent that it has. As a result most have continued full-time operations even though demand was tapering off, feeling that this decline in their orders would not prove of long duration. In view of the continued absence of healthy demand, many manufacturers have, within the last month, accumulated fair-size stocks which some are offering at low prices to move before the end of the year.

Many in the trade consider this price weakness has come at the best time of the year, if it had to come at all, believing that it is better for it to develop now instead of early next year. Weakness at this time is having a tendency to restrict production belatedly and bring about some reduction in the stocks by the end of the year. It is possible this may result in firm prices in January and for the remainder of the spring season instead of the opposite picture which was presented during the first half of this year.

Manufacturers say that notwithstanding this year-end weakening in prices by some that higher levels are inevitable. Branded full-fashioned lines have hardly started to reflect the advance in raw silk and the operations of branded mills based on silk 60 to 80 cents a pound under current prices are claimed not to have been profitable in the sense of making a proper return on their investment so that they claim their prices must go up. In line with this Julius Kayser & Co. notified its accounts that its prices would advance immediately after Christmas. The company stated that the advance cost of raw materials made the move inevitable but made no mention of the extent of the rise.

Unbranded mills have made more progress than branded in moving their prices up, but it should be evident that with sales of 4-thread, 42-gauge, ringless stockings at $5.50 a dozen, with silk at $2.00 a pound, compared with sales of a similar number of a year ago at $5.75 with silk around $1.35 that the current sales do not show much in the way of profit to the manufacturers. There is a general feeling among mill men that the average price of full-fashioned goods will be based on $1.90 silk. Buying by a number of the larger mills when silk ended its decline of between 35 and 40 cents a pound below the October 21 peak, gave the basis for this belief.

Year-End Curtailment Is Rather General

Curtailment, which has been gathering momentum in the last two weeks, is expected to become widespread during the last two weeks of the year. Manufacturers in the Reading district and in rural Pennsylvania towns were the leaders in the curtailment movement. Southern full-fashioned manufacturers have been slower to act but representatives of some of the mills in North Carolina report that operations would be restricted during the last two weeks of the year. Some of the Reading mills cut their work-week in half and stated they would continue on such a schedule until the first Monday in January. Philadelphia mills have been busy on low-end numbers on which most of the full-fashioned business has been concentrated, so that most of the curtailment in this area has been confined to those establishments operating on higher price lines.

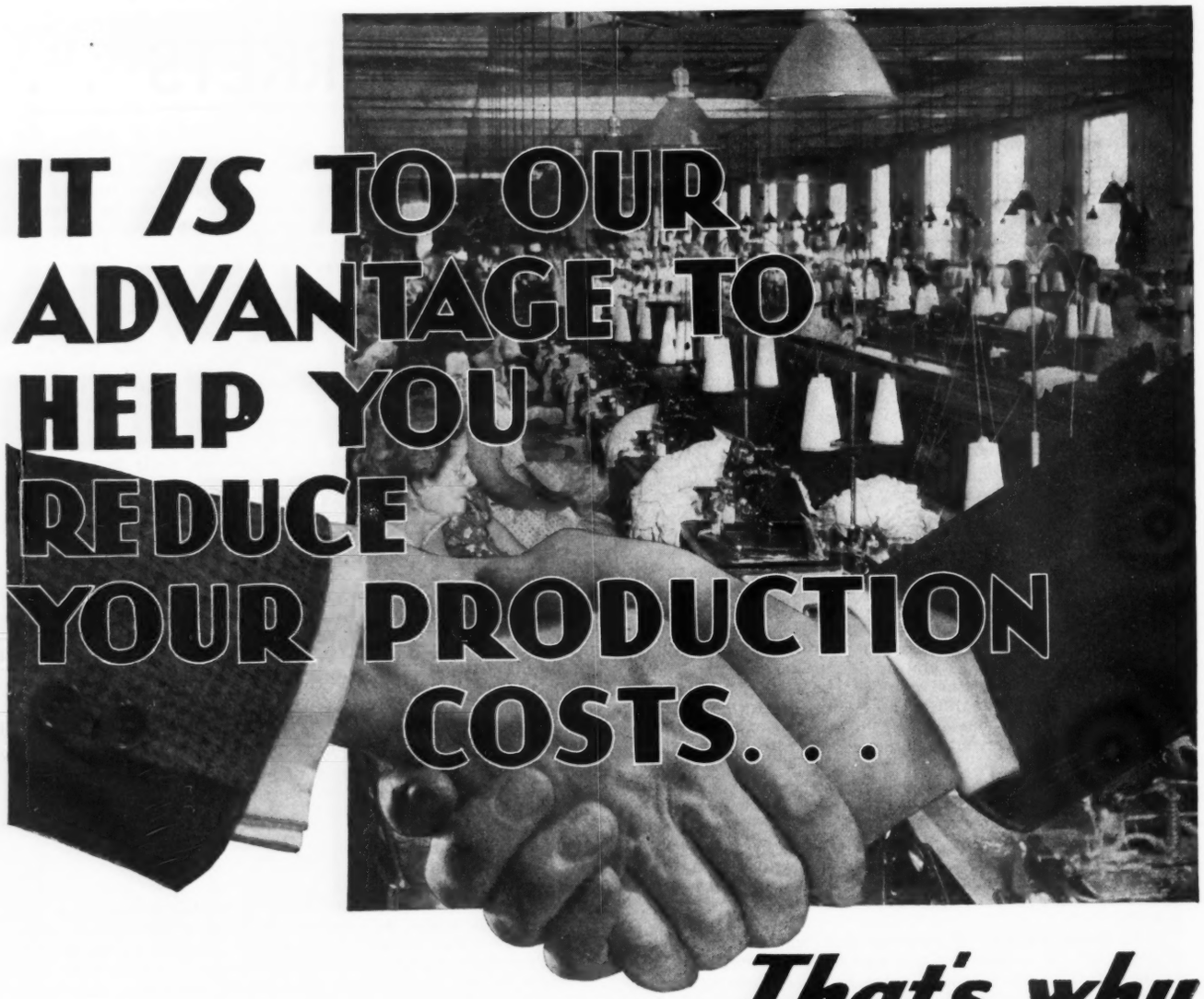
Through the rural Pennsylvania knitting area, there are plants that will run to Christmas eve and probably will re-open immediately after the holiday. A number of these small mills have often been accused of injuring the market by operating at top speed to cut production costs even though the statistical position of the industry indicated that such a course was unwise.

In commenting on the curtailment program of mills in the Reading area, Charles Lehmuth, executive secretary of the Full-Fashioned Hosiery Association, Inc., said: "It is encouraging to note that a large number of mills have again voluntarily curtailed their production as a protest against selling merchandise below the cost of production, and we urge every member who can afford it to do likewise until the market absorbs at least a portion of the surplus merchandise.

"Some manufacturers who have not as yet taken steps to curtail their production have indicated that they will close down their plants completely from December 2 until January 2. Many others plan to close for a full two weeks period.

"A move of this kind is positively necessary at this time if we are to improve the price situation in the full-fashioned industry, and we recommend that every manufacturer act voluntarily without further delay."

In line with this many hosiery mills in the Charlotte



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area announced that they would shut down for a week or ten days at the end of the year. While there was no concerted agreement among southern hosiery mills, their association suggested that the move was proper in the circumstances.

Notwithstanding this cutting down of production, predictions are being made that the industry will enter the new year with something approaching a record inventory. The year's total shipments of full-fashioned hosiery are expected to approach 34,000,000 dozen pairs as against approximately 31,500,000 dozen last year.

Crepe Twist Hose Is Good Seller

Keen as spring competition is expected to be, especially on low-end goods, it will have little effect on several of the outstanding mills now featuring crepe twists. This type of stocking is providing a means of avoiding the general price-cutting. That it has already proved its value in this respect is noted in the record to date of one of the largest Reading mills. This firm has established almost a monopoly on the business in crepe twists, despite the fact that several smaller mills were concentrating on this type sometime before it took the field. Retailing at $1.00 a dozen the crepe styles have been adopted by many progressive buyers as the salvation of their profits. The ready acceptance by both retailer and consumer has been one of the outstanding developments in the market this fall. Buyers like them because they represent a full market and also because they can offer an article that can almost be guaranteed satisfactory, which they have not been able to do for much of the hosiery now retailing at 59, 69 and even 79 cents a pair.

Since few manufacturers understand the proper method of handling the silk that goes into this type hosiery, the field is limited. The spring season is expected to uncover the full possibilities of it although another six months may be required before the industry as a whole takes cognizance of this trend. In the meantime, these few manufacturers are establishing a reputation that will be difficult for competitors to undermine.

It is generally recognized that the course of the primary market in January and early February will be determined to a large extent by the volume of retail sales this month. A seasonally dull market has been heartened by general reports of substantial gains in retail sales this month to date, particularly in New York and other large eastern cities. The spurt in retail sales which accompanied lower temperatures and good shopping weather is made up of delayed buying of fall apparel together with a large volume of Christmas gift purchasing, so that indications are retail December's volume this year will be the largest since 1931. Mill representatives are hopeful that the current spurt at retail will result in a firmer primary market during the early months of 1936 and make it easier to establish higher prices on full-fashioned stockings.

Manufacturers of all types of women's hosiery have been warned by the National Association of Hosiery Manufacturers to produce as far as possible during January and February against orders only, in building stocks for the next three months of March, April and May. They are urged to study the experiences of past years and thereby hold down their stock to reasonable limits and to have in mind that higher silk prices represent the tying up of capital to a larger degree and finally to keep in mind that the cost of manufacturing is going up not only through the rise in silk but also because of the imposition of the pay roll tax effective January 1.

Industry Statistics

The association warning points out that ordinarily the months of January and February represent the low dip in demand for women's hosiery for the year, with the peak-end demand starting at the end of August and normally receding at the end of December. The production and shipment figures of the association for all types of women's hosiery show that in January and February of this year production amounted to about 8,000,000 dozen while shipments were less than 7,000,000. For the first five months of this year, the rate of increase in production over shipments continued, resulting in the end in a difference between production and shipments in full-fashioned hose of 1,400,000 dozens on the production side.

Shipments of hosiery by mills during October reached a total of 12,164,000 dozen pairs, which is probably an all-time high for any month, according to the National Association of Hosiery Manufacturers. Statistics of the association show that stocks of full-fashioned stockings at mills at the end of October were approximately 750,000 larger than at the close of the same month in 1934. The most important statistics affecting the picture are those which have not been released as yet but which will show the figures on production during November and the approximate rate of mill operation this month. If they produce too much goods in November and continue to do the same thing in December, price easiness in the primary market will be apparent in January and February, even though raw silk strengthens.

Shipments during October of this year exceeded those of the same month in 1934 for all the various types of hosiery, except infants' anklets and men's golf hose, where slight seasonal declines were registered. Shipments for the month were higher than production in all types except for women's seamless silk, women's seamless rayon, men's golf hose, anklets and infants' socks. In the case of anklets and infants' socks, a certain amount of stock building is normal for this time of the year when demand is seasonably low, in anticipation of the rise in demand which usually occurs at the beginning of the year. Employment in the hosiery industry increased during October to a new high of 149,326 as compared with 145,833 during September.

Only slight effects on the domestic knit goods industry is expected from the new trade agreement between Canada and the United States, under which tariff rates on a wide range of products are reciprocally lowered. The reduction in Canadian tariff rates on all major knit goods is so slight as to permit little, if any increase in domestic exports to that country, it is generally felt in the trade. The new agreement becomes effective January 1, 1936, and is scheduled to expire December 31, 1938.

Canadian rates are reduced as follows: Hosiery of all kinds from 35 per cent and $1.50 per dozen to 32½ per cent and $1.35 per dozen.

Knit garments and knit goods not otherwise provided for (including underwear and outerwear)—from 45 per cent and 30 cents per pound to 35 per cent and 25 cents per pound.

Gloves and mitts of all kinds from 45 per cent to 25 per cent.

The Canadian rate on imports of yarns and warps, thrown silk in the gum, for knitting is reduced from 10 per cent to 7½ per cent.

New Spring Colors

The new hosiery colors for spring, 12 in all, have been released by the Textile Color Card Association to its members this month and met with approval by a large number of manufacturers. Burnt shades and club colors are given special importance in the new color card. The burnt shades made up of Burnt Nude, Burnt Ochre and Burnt Copper, reflect the smart influence of the copper range in costumes and accessories. The club colors are designed for either town or country wear and include Biltmore Blue, Del Monte Wine and Pinehurst Green. The other colors completing the list are Misty, a beige of blush undertone; Toasty, a rich suntoned beige; Snappy, a spicy hue of coppery cast; Moondusk, a medium taupe gray; Marimba, a dark natural beige, and Pago, a light tropical brown.

Discontinuance of the stamping of irregulars, seconds and thirds in fancy half hose by certain manufacturers is causing unfavorable comment in the primary market. It is asserted that an increasing number of mills are disregarding their former NRA code regulations with regard to the marking of inferior quality merchandise, especially on half hose fancies to retail at 35 cents a pair and under. It appears to be the general belief among better manufacturers that the former code provisions calling for the indelible stamping of seconds and irregulars should be continued. Manufacturers contend that it is pressure from a certain type of buyer which is causing certain of them not to stamp their seconds. It will be remembered that a controversy over the marking of full-fashioned irregulars waged for years prior to the NRA, the points at issue being practically the same as those now receiving attention in the half-hose market.

The hosiery industry was represented at the Berry industry-labor conferences in Washington to consider possible new NRA legislation by the following committee: John W. Mettler, Interwoven Stocking Co.; William H. Gosch, Nolde & Horst Co.; Robert O. Huffman, Morganton Full-Fashioned Hosiery Co.; J. C. J. Strahan, Strahan & Co.; A.

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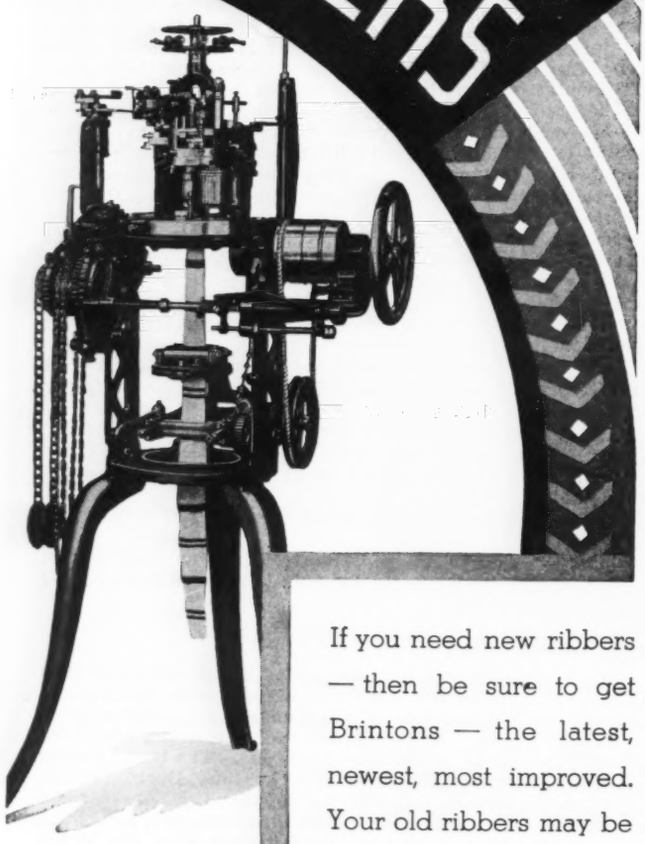

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Friedlander, Phoenix Hosiery Co.; J. E. Millis, Adams-Millis Corp.; James G. Hanes, Hanes Hosiery Mills Co.; Taylor R. Durham, secretary of the Southern Hosiery Manufacturers Association, and Earl Constantine, managing director of the National Association of Hosiery Manufacturers. The committee registered opposition to any further legislation in the direction of government control or regulation of productive industry but did not commit the industry in any way.

Combed Shirts Going Good

Withdrawals from sale of large selling spring numbers, such as men's athletic shirts, especially numbers made of combed yarn are noted in the underwear market. Mills that have booked a large spring business in many instances are taking such numbers off the market. Since the spring underwear prices were made, a month or so ago, there has been a sharp rise in the price of combed yarns now so largely used in men's knit underwear and such manufacturers are not taking any chances by selling beyond their yarn supplies. It is felt that the spring underwear prices named were too low, even at the time they were made when yarns were cheaper. Many feel the safe policy now is to go slowly in booking further light-weight orders.

Mills making men's wool underwear continue to announce advances on 25 to 100 per cent numbers in keeping with the continued rise in the wool market and thereby laying a foundation for the still higher prices that are considered inevitable for the fall season of 1936. In a letter to the trade, one mill gave the impression its new prices on such lines would be about in the same proportion as other mills which have advanced prices $1.50 a dozen on 100 per cent wool suits, 75 cents on the 50 per cent number and 50 cents on the 25 per cent wool numbers.

Following the price advance made by one of the balbriggan mills, it is indicated that other mills making similar merchandise will also mark up spring prices shortly. The balbriggan shirt price on the line advanced is $2.62½ a dozen for the cheapest number, while the balbriggan suit is $4.25 a dozen for the short sleeve ankle style. Outside of these advances, the market as a whole is going along normally with a fair volume of business being received daily for next season. A general rise in prices is being talked of but more mills apparently have not reached the point where they think it advisable to mark up prices.

Heavyweight Demand Spotty

Immediate demand in heavy-weight lines is spotty, reorders as a rule being light. Some of the mills making men's goods are in a position to give good deliveries, while other mills making certain numbers are still active on all orders. The mild weather unquestionably upset the calculations of manufacturers that at one time saw business ahead for the balance of the season. Underwear salesmen returning from their spring selling trips report that rarely has competition been more intense in a price way than they encountered in their recent calls on the trade.

This was particularly the case in men's lines and in staple items, such as athletic shirts, balbriggan shirts, drawers and some numbers of union suits, such as balbriggans and the lower end of the ribbed market. Some mills' representatives are giving warning to large customers that an advance in prices can be expected later in the season on cheaper numbers. The demand in men's cotton ribbed numbers has been tapering off rapidly. The situation in this end of the market is not as slow as a year ago, but at the same time, is not what manufacturers would like to see.

The large use of combed yarns by the underwear industry continues. The better end of the men's athletic shirt business is now confined almost exclusively to combed, rather than the carded numbers first used when this business became active. Likewise in fall underwear lines, such as the popular snuggies for women, all but the very cheap goods are of combed yarn, mixed with rayon or in the higher priced numbers, with wool and silk. The growing business in men's and boys' polo shirts makes another demand on combed yarns as the large selling mesh knit and fancy knit polos are of this construction.

Another development of the light-weight season is the trend toward men's knit shirts put out at low prices and which sellers are now claiming to be full combed. This departure from the accepted practice of the past necessarily follows from the attempt to trade on the popularity of the term "combed" by getting out a shirt that can be offered at a low price. The older mesh knit, which was the original style of the polo, has been receiving less attention, though some manufacturers believe volume in polos will finally develop in that direction again. In all of these new styles of the better qualities, combed yarns are playing an important part. The popularity of two-piece underwear with knitted athletic shirts and woven shorts has cut into volume of the older type of garment.

During the first nine months of this year shipments of cotton or wool or mixed underwear were ahead of producion by a quarter of a million dozen. These figures, taken from the reports of the Department of Commerce show that shipments of this largest class of knit underwear amounted to 14,256,381 dozens by the mills reporting to the government since January 1 and through September. The production for the same period amounted to 14,008,421 dozens of the various kinds of underwear, men's and boys' knit athletic shirts of all weights made up by far the largest item in both shipments and production. Shipments of the ahletic shirts for the nine months amounted to 5,283,422 dozens of garments, while the production was below this, with a total of 4,806,196 dozens. Men's heavy union suits of nine pounds per dozen and over amounted to 1,214,520 dozens in production while the shipments for the nine months were 1,052,836 dozens.

Shipments of knit underwear of cotton or wool amounted to 1,971,252 dozens during October this year, a considerable gain over the figure of 1,486,022 dozens for the same month last year. Production figures likewise were up, amounting this October to 1,618,655 dozens compared with 1,275,611 dozens for October of 1934. These figures are from the Bureau of the Census in co-operation with the Underwear Institute. The largest item in the list continues to be the men's and boys' athletic shirts of all weights. The shipment of these being 281,709 dozens this October compared with 221,808 dozens a year ago the same month. The production of athletic shirts this October amounted to 332,657 dozen against 276,425 dozen a year ago in October.

In rayon knitted underwear, from purchased fabrics, shipments this October were 481,386 dozen as compared with 487,056 dozen a year ago the same month. The production of this same underwear amounted to 509,107 dozen this October against 528,208 dozen a year ago. In the rayon underwear from fabric made by manufacturers themselves, the shipments this October were 71,430 dozen against 62,340 dozen a year ago.

According to data of the Underwear Institute, the pay roll tax that becomes effective on January 1 under the new Federal Social Security Act will mean a levy on an annual wage payment of $41,000,000 in this one industry alone. This amount was the total pay roll during 1934 of an industry that averaged 64,500 employees. The Underwear Institute has already pointed out that this new pay roll tax will ultimately amount to 6.3 per cent on pay rolls plus all additional bookkeeping and overhead expense involved in collections from employees. At the same time, yarn and other raw material prices will reflect the higher cost of manufacturing.

Unique Buys Pilling and Madeley

PHILADELPHIA, PA.—Unique Knitting Co., Acworth, Ga., has purchased the machinery and equipment of the Pilling & Madeley Mill, Inc., here, old and well known manufacturers of half hose, anklets and five-eighths hose. It will be moved to the Unique plant shortly after the first of the year, increasing the productive capacity of the mill there about 30 per cent.

The Pilling & Madeley plant here is one of the oldest seamless mills in the country. Frank F. Morris, its president, is retiring from business after spending his entire business career with this one concern. He started with them when 13 years old. The Unique knitting plant was formerly located in this city having moved South about eight years ago.

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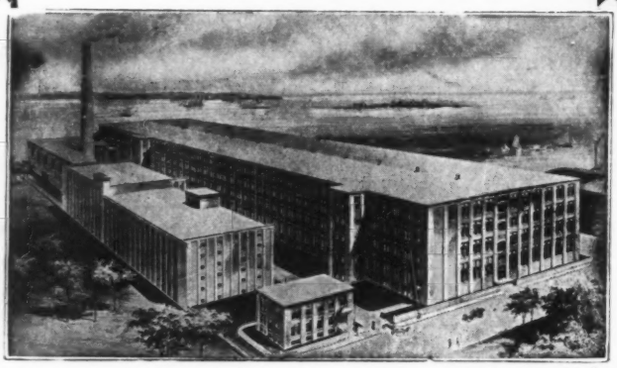

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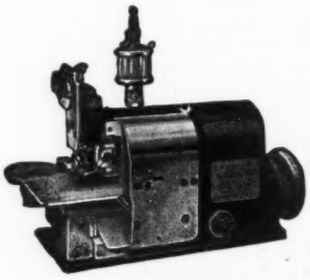

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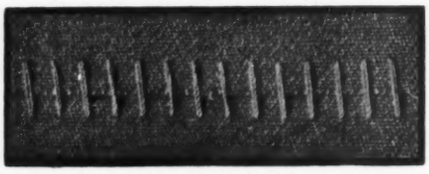

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DALTON GEORGIA

REVIEW OF THE YARN MARKET

Philadelphia, Pa., December 16, 1935.

TRADING in cotton yarns has been of a less active character since the middle of November. Although volume since that time has been fair, it makes a poor comparison with the extremely active business that cotton yarn spinners and distributors had been doing during the previous three months. The decline in new poundage may be attributed to a number of factors of which the seasonal one should be given the most weight. Manufacturers usually place smaller contracts as the end of the year approaches but the decline since November 15 in new orders has been very noticeable.

In the next place, new business has been declining because manufacturers generally had bought so heavily during the preceding months so that they had no occasion to buy additional quantities unless they felt that prices of yarns were apt to go higher. At the same time, this situation gave spinners a considerable volume of advance business on which they are now making satisfactory deliveries. The latter has been one of the most favorable aspects of the market during the last month, spinners reporting that manufacturers were taking yarns as promptly as specified and in some instances were asking yarn producers to advance shipping dates.

In the third place, forward buying has decreased because most manufacturers feel that yarns have advanced to at least a temporary peak and in confirmation of which they point to the softening of yarn rates during the first week of December when carded yarns were being offered at a half a cent off from the previous rates, such prices coming from spinners that had not sold their December production completely.

Raw cotton during the last month has declined about 35 points, the market being 12.35 on November 16 as compared with a present level of around 12 cents. While the futures market was showing this decline of about one-third of a cent, cotton yarns have registered advances of about one-half cent in carded qualities while combed are being quoted at approximately the same levels as a month ago. Combed prices are in contrast to higher figures which were named up until the end of the first week of December, generally one-half cent higher than now asked.

In explaining this divergent trend of raw cotton and yarn prices, spinners point to the higher basis which they must pay for spot cotton. They assert that the basis for even the ordinary lengths of cotton has increased faster than the futures market has declined which raises the cost of their raw material irrespective of the change in the New York market. Combed yarn spinners say their long staples have been affected by this factor to a noticeable degree.

Although there was comparatively little discussion of the coming Supreme Court decision on the Agricultural Adjustment Act during the active buying period, which ended November 15, this subject is again receiving a great deal of attention from manufacturers and yarn distributors here. There are several important yarn merchants who have decided to accept no more long contracts until a decision on this case is handed down. A majority, however, feel that their interests are sufficiently protected by the standard clause adopted for the sales yarns spinning trade last August and they are booking long contracts wherever possible.

Spinners are also beginning to realize the importance of the Federal Social Security Act, which for them begins January 1, 1936. It is felt that comparatively few have given this matter sufficient attention in booking contracts during recent weeks that call for shipments during the first half of 1936. Costs of maintaining the payments necessary under this act should be figured in such contracts, unless the spinner cares to carry this additional overhead himself.

With the exception of a fair amount of additional large contracts in single combed and in mercerized the bulk of the new business placed in the last month has been of a filling-in character, many manufacturers desiring to keep their year-end inventories as small as possible. There have been additional important-sized contracts in single combed, the peak in such poundage being reached late in November.

A number of underwear manufacturers have bought combed yarns up until next May and in other cases through the first quarter of 1936. Such buyers feel that yarn prices along with other commodities will be much higher before the middle of next year and they are covering ahead with this thought in mind.

Fear of another advance in mercerized yarns has accelerated trading in these counts during the last two weeks so that this section of the market is in contrast with lessened activity in the gray yarn section. While new contracting has not been of the importance of that prior to the advance in mercerized earlier in the fall, a considerable volume has resulted.

Manufacturers are paying approximately 72 cents for 60s two-ply in contrast with 68 cents paid prior to the advance. Such contracts have been placed by knitters who neglected to cover ahead at the time of the advance and do not want to lose this opportunity a second time. In other instances manufacturers who bought at the time of the advance have placed additional contracts to follow, which in many instances indicates that knitters have covered a good portion of their mercerized yarn requirements durings the first half of 1936.

This heavy contracting in mercerized during the latter months of this year has been sufficient to bring the year's total production to 10 or 15 per cent above the production of 1934. Mercerizers have also been benefiting by a trading-up policy among many hosiery manufacturers. Such concerns that have been using carded or combed yarns have switched

over to the use of mercerized, according to several processors. Poundage of mercerized used in infants' and half hose has been much larger than a year ago.

There has been little change during the month in worsted yarn prices which continue at close to the 1935 peaks. The demand for worsted yarns has been exceptionally quiet, particularly in the knitting section which most in this trade ascribe to the high prices of such yarns. Indications are high prices will have the effect they did two years ago and result in the consumption of a much larger amount of cotton yarns especially by the knitted outerwear industry. There have been definite indications this will be done in their spring goods, several sweater manufacturers having stated they will put at least 50 per cent cotton in their spring sweaters because of the high prices of worsted yarns. Such manufacturers say their customers desire to buy a garment priced at approximately the same level as six months ago and to meet this idea, the only alternative for the knitter is to use more cotton and less worsted yarns.

William Brown Co. Sold at Auction

PHILADELPHIA, PA.—One of the largest offerings of full-fashioned hosiery machinery at public auction in the history of the industry was held here November 20 and 21 when the real estate, machinery and equipment of William Brown Co., manufacturers of Granite Brand Hosiery, was held.

The sale was held by order of the Federal District Court and was under the direction of the receivers of the Brown company. The concern was started about thirty years ago by William Brown, who retired from the company about ten years ago when James J. Sullivan became its head. More recently the plant was operated by members of the latter's family.

Besides the plant, trade names and patents 171 full-fashioned machines of 39, 42 and 45 gauge were offered. The highest bid received for the plant and machinery as an entirety was $330,000 and was made on behalf of the mortgage holder. In view of the fact that piecemeal offers for the machinery and plant did not total any more than this figure, the concern's assets were taken over by an insurance company, which held the mortgage. This concern has been selling the machinery to concerns that had submitted piecemeal offerings. There was a ready demand for its 42 and 45 gauge machines but a lack of interest in 39 gauge. The trademark "Granite" was purchased by a Pennsylvania knitter for $10,000, so that this brand will be continued.

R. L. P. Reifsneider

R. L. P. Reifsneider, veteran textile trade reporter and association official, and Philadelphia editorial representative for COTTON for many years, passed away on December 20 at the Hotel Walton, Philadelphia, where he was making his home temporarily. He was 82 years old. Funeral services, attended by a large number of textile manufacturers and machinery men, were held on December 23.

Mr. Reifsneider entered the reporting field as a young man, when he became connected with the Norristown Register; he later was associated with the Philadelphia Record, and then with the Public Ledger, where he was in charge of that publication's business section. Twenty years ago, he entered the textile reporting field, and in recent years represented eight different publications covering the Pennsylvania territory for them. He was recognized as one of the best posted trade reporters on the problems of the knitting industry, noted for his fairness, accuracy and conscientiousness and courtesy. At one time he was an official of the National Association of Hosiery and Underwear Manufacturers. His widow and one granddaughter survive him.

Hosiery Sales During October Set a New High

Shipments of hosiery from American mills during October, 1935, amounted to what probably is a record of 12,164,000 dozen pairs, according to the monthly Statistical Bulletin of the National Association of Hosiery Manufacturers. Demand was nearly 2,500,000 dozen pairs above the corresponding month of last year, and also 1,347,000 dozen pairs above September, 1935.

Production during the month, amounting to 11,574,000 dozen pairs, was also 2,000,000 dozen pairs or 21 per cent ahead of the same month of 1934 and approximately the same amount ahead of September. Both production and shipments during the ten months of this year were almost eight per cent ahead of the corresponding period of last year.

Ten months' shipments amounted to 92,389,000 dozen pairs and ten months' production amounted to 92,311,000 dozen pairs, showing for the industry as a whole a fairly even balance between production and shipments. This resulted from the fact that shipments during the latter part of the period exceeded production, thus offsetting stocks which had been built up earlier this year.

Total stocks on hand at the end of October this year were 17,464,000 dozen pairs as compared with 17,006,000 dozen pairs a year ago at the same time. These stocks showed a normal three per cent decline from those on hand at the end of September. Most of the increase in stocks this year as compared with last year, took place in full fashioned hosiery, where this year's October 31 inventories were approximately 750,000 dozen pairs higher than a year ago. This increase is not excessive when it is borne in mind that the larger consumption this year, as compared with all previous years, has resulted in a turn over rate of 7.4 times per twelve month period, as compared with a rate of 6.6 a year ago.

Shipments during October of this year exceeded those of October 1934 for all the various types of hosiery except infants' anklets and men's golf hose, where slight seasonal declines were registered. Shipments for the month were higher than production in all types except for women's seamless silk, women's seamless rayon, men's golf hose, anklets and infants' socks. In the case of anklets and infants' socks, a certain amount of stock building is normal at this time, when demand is seasonally low, in anticipation of the rise in demand which usually occurs at the beginning of the year.

The current Bulletin also reports an increase in the average wholesale selling price of women's full-fashioned hosiery, coincident with the increase in demand. This is attributed in part to the growing demand and in part to the advance in the price of raw silk that has taken place during recent months. A chart is included showing the relation of selling price of women's full-fashioned silk hosiery to cost of production and reveals that during the depression the selling price dropped much more rapidly than did the cost of production. The report points out that recent increases in the selling price of women's full-fashioned hosiery still fall short of the increases in production cost due to the sharp advances in the price of raw silk.

Employment in the hosiery industry increased during October to a new high of 149,326 as compared with 145,833 during September.

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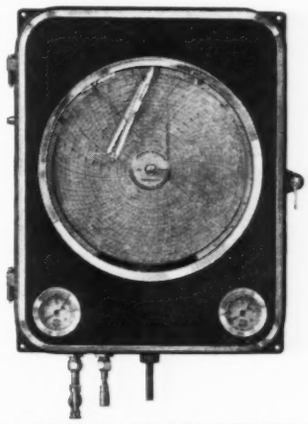

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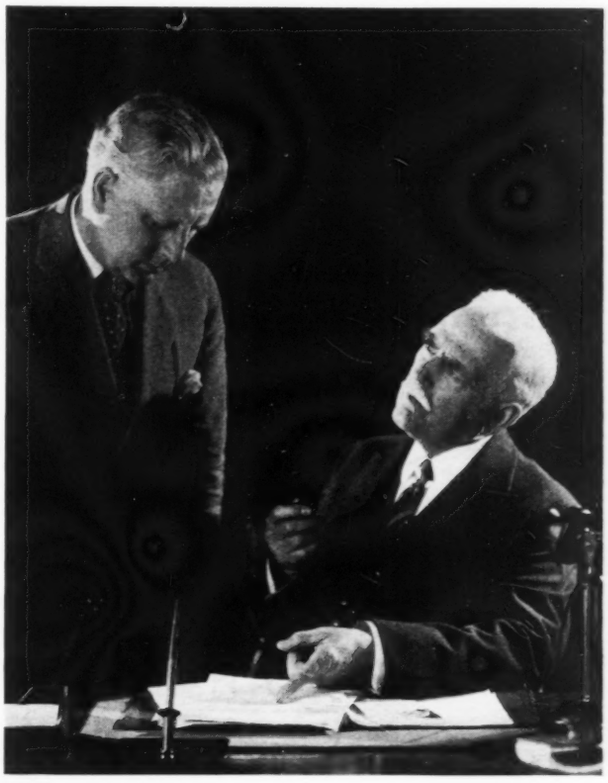

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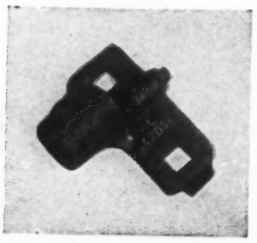

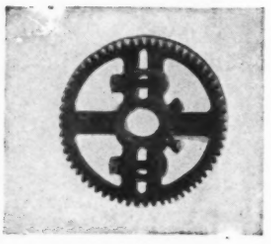

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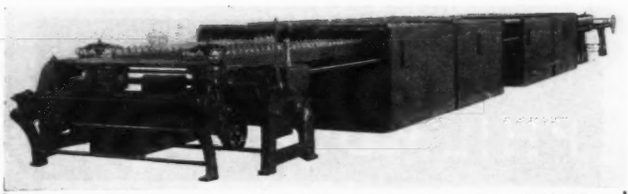

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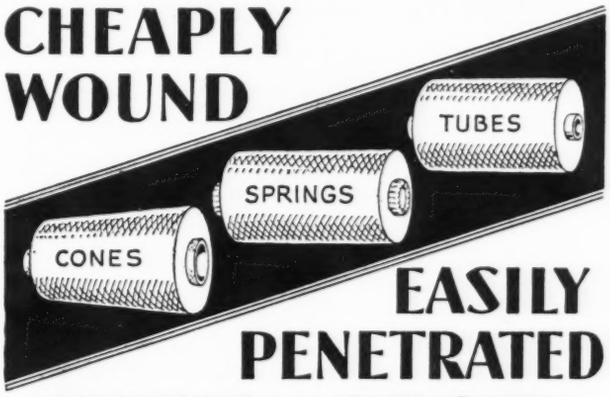

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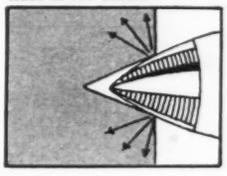
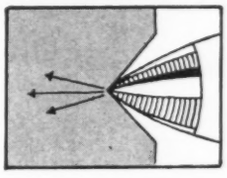
so the 50 TYPE PICKER lasts longer!

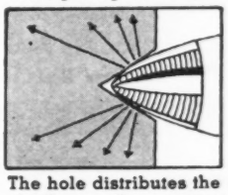
What happens when the hole is too small.



What happens when the hole is too shallow.



What happens when it is shaped by machine.



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This is the only picker you can get which has a machine-cut shuttle point hole . . . That's why it outlives other pickers 2 to 1.

Because the patented "Life Saver" hole is shaped to accommodate the shuttle point, it takes the shock where the picker is strongest. Per million blows, the 50 Type Picker is the cheapest.

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Loom fixers prefer them because there's no cutting to do (no danger of knife slippage) . . . they fit right onto the stick . . . and replacements are fewer.

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50 TYPE PICKER

THE PICKER WITH THE LIFE · SAVER HOLE

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800—No. 2 McColl Guides, 2"
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6—Portable Rotary Sewing Mach.
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1—Tolhurst 48" Extractor, copper basket
1—8 spindle Finisher 6"x12"
3M—Ring Pick Gears—25c each
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2—P. S. Double Head Gill Boxes

MISCELLANEOUS

4—McBeth Daylight Lamps 110/60/3
1—Suter Single Strand Yarn Tester
1—Royle Automatic Card Lacing Machine
1—Royle Hand Repeater
1—Royle Piano Machine
1—Royle Cop Winder
(The above Royle Machines are French Index, Philadelphia peg 600's)
1—Pipe Threader 1" to 4"
1—Pipe Threader 2½" to 8"
2—Bushnell knuckle joint Cloth Press 48x24
1—Geared Triplex Water Pump 3" x 3¼"
1—Steam Pump 5½x3½x7
1—Scott Model D Yarn Tester, motor driven
2—Scott Model J Yarn & Cloth Testers, motor driven
1—Torsion Balance Scale, Model No. 5005
1—Cornely Numbering Mach, motor driven
12—Brown & Sharpe Grain Scales
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35—No. 90 Universal Winders with bunch builders

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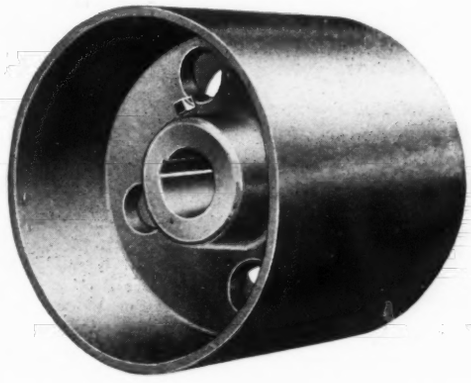
GOLDENS' WEB CENTER
Cast Iron Motor Pulleys



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These pulleys are bored, keysteated or set-screwed and ***turned all over,*** thus securing the best possible balance.

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These pulleys are bored, keysteated or set-screwed and ***turned on outside and inside of rim,*** but not on web or hub.

ROUGH-FINISHED

These pulleys are bored, keyseated or set-screwed and ***turned on outside of rim*** only.

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Columbus, Georgia

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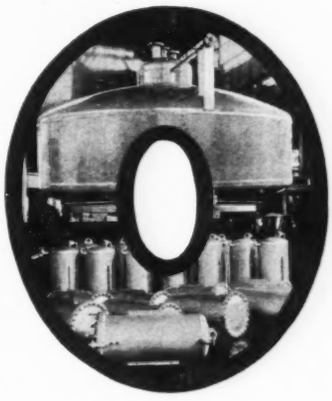

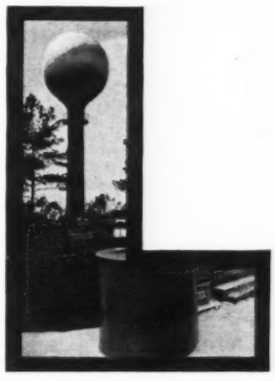

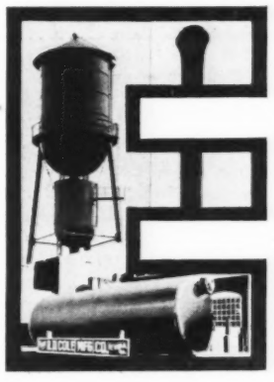

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Established in 1854

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MODERNIZATION AND MAINTENANCE

will be the theme of the February issue of COTTON.

This annual number will feature authoritative special articles on modernization and maintenance which will warrant careful reading and study and frequent reference.

Manufacturers selling to the textile industry can capitalize by having representative announcements in this special issue. Forms close January 24th.

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With genuine appreciation we reflect upon your loyal support, and with the utmost sincerity wish you continued Health, Happiness and Prosperity throughout the New Year.

A. J. ROYCE and ASSOCIATES

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